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TEACHERS COLLEGE
RECORD

Attitudes, Values, and Aversions*

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THE educational literature suggests a substantial and increasing interest in the role of the school as a character-building institution. Many authors think of character education as consisting largely of the formation of desirable attitudes. This discussion is an attempt to clarify the nature of attitudes and their relationship to values and aversions.

ATTITUDES, VALUES, AND AVERSIONS DEFINED

The word "attitude" is here used to mean an emotionally colored tendency to behave in such a way as to imply support or rejection of some referent. In this sense an attitude is always "attached" to something. It never exists in the the abstract. Whether the attitude is protagonistic or antagonistic it always is related to some referent. We frequently ask the question, Does he have a good attitude? but when we do so we imply a referent even though we do not name it. We have in mind, as we ask the question, a "good attitude" *toward something.*

These referents are as varied as human experience. One referent toward which an attitude may be assumed might be a single individual—one's mother or father or President Eisenhower or the late Joseph Stalin. Another kind of referent is a group of people who tend to have—at least in our perceptions—something in common. We talk a great deal, for example, about attitudes toward Negroes, Jews, Catholics, Protestants, Republicans, Democrats, the members of the United States Senate, or professors of education.

Still another kind of referent might be

* This discussion was used by Arthur W. Foshay, Kenneth D. Wann, and Associates as a basis for Chapter 2, "Our Ideas About Social Values," in their book *Children's Social Attitudes,* which was published in 1954 by the Bureau of Publications, Teachers College, Columbia University.

an institution and all that it implies to a particular person. He may have positive or negative attitudes toward American public education, the Supreme Court, or the Catholic Church. Then there is the kind of referent that is represented by particular practices, such as capital punishment or spanking children in the school or certain aspects of group dynamics. Referents can also be objects, such as a crucifix or a Chevrolet; or a cluster of ideas, such as those the individual understands are implied by the words "democracy" or "communism."

The variety of these referents, and the fact that most of us react either favorably or unfavorably toward them, merely call attention to our inveterate tendency to evaluate. Almost invariably, each experience we have—whether it is with a person or a group or an institution or an idea or a practice or an object—is evaluated in the sense that we feel favorably or unfavorably disposed toward it.

For the purpose of this discussion, those referents toward which an individual has a positive or favorable attitude constitute his values. This means that whatever the referent may be, he is disposed to behave so as to support it, or want to be in its presence, or imitate it, or have more of it, or approach it, or make sacrifices for it, or do whatever he can to assure its perpetuation.

This, I recognize, extends the meaning of the term "value" beyond that ordinarily understood. These referents toward which the individual has positive or favorable attitudes might be sorted out in many ways. Some of them could be called "spiritual" and others "material." Some might be quite specific and others quite general. Some might be exceedingly ephemeral and others persistent throughout life. Be this as it may—and again for the purposes of this discussion—I am using the word "value" to designate all of those referents toward which an individual has positive or favorable or protagonistic attitudes.

I am using the word "aversion" to mean referents toward which the individual has negative or antagonistic attitudes. These referents the individual wants to destroy or to get away from or to undermine. The suggestion has been made that a better term than aversion might be "negative value," but this word seems to distort the basic meaning of "value," which by its very nature evokes positive and affirmative and supportive behavior.

A VALUE-AVERSION CONTINUUM

In explaining these conceptions about attitudes, values, and aversions, it has helped me to use a value-aversion continuum construct to describe at any moment in time the value-aversion status of a number of referents for a particular individual or for a group. For example, the following value-aversion continuum locates a limited number of values and aversions as they are perceived by a particular seventeen-year-old boy.

HIGHEST AVERSION STATUS		MODERATE AVERSION-VALUE STATUS		HIGHEST VALUE STATUS	
A	B	C	D	E	F

A People who criticize his behavior
B Cutting the lawn
C Studying
D Company of his parents
E Company of certain girls
F His car

Locating these referents on a continuum calls attention to two fundamental dimensions of an attitude. One has to do with its valence—the attitude is either affirmative or negative in respect to the particular referent named. The other characteristic or dimension has to do with the intensity of the attitude. Those referents that are located at the far ends of the continuum are the ones in respect to which the individual has strong attitudes. The intensity of these attitudes implies a priority factor which everyone has undoubtedly observed as he has thought about his own behavior or has noticed the behavior of other people carefully. This seventeen-year-old boy, for example, would usually go to greater lengths to be with certain girls than to spend his free time with his parents. If he were faced with a decision, he would choose the girls for companions even though this might disappoint his parents. If the disappointment were extreme, however, and might result in certain punishments, other referents would need to be considered. Attitudes toward them would then be taken into account in predicting his behavior.

A number of years ago E. L. Thorndike, in some ingenious experiments, attempted to measure attitude intensity by determining what financial price an individual would pay in order to support or reject referents in respect to which he had formed positive or negative attitudes. The problems involved in measuring the intensity of attitudes have been studied a great deal by social psychologists. Thurstone, for example, developed during the thirties a number of scales which measured the strength of attitudes, or opinions, toward a long list of referents.

Not only is it theoretically possible to construct a value-aversion continuum for an individual at any moment in time, but the same thing can be done for a group. This is possible because the conception of a group means that its members have similar attitudes toward certain referents. I do not know very much about the National Association of Manufacturers, but the value-aversion continuum sketched out below is an attempt to locate some referents as their location might be inferred from the activities of the leaders of this association.

HIGHEST AVERSION STATUS				HIGHEST VALUE STATUS	
A	B	C	D	E	F

A Communism
B Most government "interference" with business
C Labor unions

D Public education
E Competition in business
F "The American Way"

In the last analysis, the referents that an individual regards as values or aversions are inferred from his behavior—"behavior" being used in a broad sense to include both symbolic and non-symbolic activity. Most of the early studies of attitudes were based upon the assumption that verbally stated opinions were rather adequate indices of the way an individual, in his more overt behavior, would support certain referents (positive attitudes) or reject certain referents (negative attitudes). Subsequently a number of studies were conducted indicating the lack of relationship between verbal opinions and attitudes as inferred from behavior. A divergence is most apt to

exist in respect to those referents toward which strong "public" attitudes exist. Under these circumstances we may have our private (real?) attitudes, which tend to be determinative of our behavior, as well as public attitudes, which are the ones we are willing to express in a group, which itself has strong attitudes.

SHIFTING VALUES AND AVERSIONS

Referring to the use of the value-aversion continuum, it should be understood that the location of referents on it is not static. Some referents may maintain a relatively fixed status in relation to many other referents throughout an individual's lifetime. Those people who have learned to ascribe high value status to "doing a good job," for example, may have much of their behavior affected by this referent over a long period. One of the objectives, of course, in character instruction is to stabilize at the extreme right or left end of the value-aversion continuum certain referents that will influence an individual's behavior for years.

Some referents, however, shift their position on the value-aversion continuum gradually or suddenly as a consequence of various factors. For example, whatever it is that a boy perceives in girls that causes him to assume a rather definite attitude toward them is differently perceived as he grows older. There is, consequently, a shift of this referent "girl" from rather decided aversion status along about age ten, eleven, or twelve, to high value status at age seventeen or eighteen. Similarly, the attitudes of college students toward the referent "war" underwent considerable change during the period 1938-1944. "Food" as a referent may shift rapidly from a value to an aversion as hunger is satisfied. After three days of total and involuntary starvation the referent "food" has highest priority for a normal human being. A starving man will do whatever he perceives necessary in order to get food, even though it causes him to neglect or violate many of the values that he thought important at other times.

These referents that I am calling values or aversions do not, of course, exist solely as discrete and individual items, but more frequently in constellations or galaxies. For example, as the referent "girl" shifts for the growing boy from aversion to value status, many other referents that are associated in his perceptions with girls take on value status too. I have in mind things like combing the hair, washing the hands, eating food with some daintiness, making introductions properly, and dressing neatly. If parents and teachers were constantly aware of this "galaxy" phenomenon they might save themselves a great deal of anxiety. Less effort would be spent trying to get boys to attend to cleanliness or to their personal appearance before any interest has developed in girls. It is this latter interest which makes personal appearance as well as more conventional manners have value for them.

INCOMPATIBILITIES AMONG VALUES AND AVERSIONS

There are, inevitably, many incompatibilities in the value-aversion system of an individual or of a group. Whatever behavior is perceived by the individual as necessary to support certain values may also result in supporting certain aversions. Anyone can think of specific instances of these incompatibilities. At a relatively insignificant level there may be continuous conflict between what an individual perceives he must do in order to support the value of staying in bed late in the morning and yet not behave so as

to support the aversion of having a bad reputation for punctuality.

A more frustrating and significant kind of conflict is observable in those individuals or groups in America who want consistently to support Christian values, and at the same time are exceedingly patriotic. Behavior in support of certain Christian values means that man loves his fellow men, forgives his enemies, and leaves vengeance to the Lord. Strong patriotism, on the other hand, periodically may require behavior that involves killing one's enemies, destroying their institutions, and wreaking vengeance whenever possible.

Many believe that one of the most serious problems that beset our contemporaneous culture is this incompatibility among professed values. The conflict that ensues creates anxieties and uncertainties, and frequently results in aggressive behavior or flight from reality.

LEARNING VALUES AND AVERSIONS

Going back for a moment to the schematic value-aversion continuum, many factors determine the locus of referents as a partial description of the value-aversion system of an individual or a group. Whether or not an institution or a practice or an idea or an object is reacted to with a favorable or an unfavorable attitude depends upon the relationship the individual sees between this referent and his total existing value-aversion system. If he considers the activities of Senator Joseph McCarthy to have exceedingly high value status, and if he has experience with some idea or person or group or practice which causes him to perceive it as closely and positively related to the Senator, this new referent will have value status for him.

This description of the way values and aversions are learned seems simple and it also appears to be in accord with the facts. We learn to have favorable, positive attitudes toward those referents that we believe are associated positively with the values we now hold. We learn antagonistic attitudes toward those referents that we perceive as related to aversions that we already have learned.

GENESIS OF A VALUE-AVERSION SYSTEM

The way a value-aversion system seems to grow is illustrated in the case of a new-born baby. So far as we know, the "innate" values and aversions of a new-born child are few in number. Pain is an aversion, as are all other types of physical discomfort. The most important value is probably food. Whatever referents become associated in the experience of the new-born infant with food will gradually assume value status. If a particular referent is associated not only with food but with the reduction of physical discomfort as well, this referent will take on value status more rapidly. Whatever referents are experienced by the child in association with physical discomfort will tend to take on the aversion status that the child already ascribes to physical discomfort. Over the course of time the child's mother is almost always associated in a supporting way with his existing values. She protects him and comforts him and praises him and feeds him and nurses his hurts and lets him rail at her when he must. Her positive relationship to his existing values is continuously reinforced, and thus her value status is enhanced. Whether or not what the mother does is really good for the child is not the point. The mother becomes a value for him when he perceives her as engaging in activities which are positively related to his existing values.

This description of the way in which values and aversions are learned may not frequently be raised to a conscious level and talked about, but it is taken advantage of by anyone who sets out to change the value-aversion system of other people. This is a rather constant aspiration of many newspaper writers, churchmen, parents, school officials, CIO officials, and a host of other individuals and groups. What must be done is quite straightforward. First, find out as much as you can about the existing value-aversion system of the individuals or groups you want to influence. Next, try to get them to associate certain referents with their existing values and certain other referents with their existing aversions. When these two things are done skillfully the individual or the group will believe or reject whatever it is that you have decided should be believed or rejected.

The following illustration from an editorial makes this procedure rather clear:

> The extensive use of machines, in all industrial operations, is the American way. The great captains of industry in the nineteenth century, with a courage and resourcefulness that overcame all obstacles, have given us, their heirs, freedom from fear of want and material things far in excess of the wildest dreams of our grandfathers. We have leisure time for recreation and the means to indulge our every wish. Serf-like dependence upon handicraft is a thing of the Dark Ages.

This editorial writer wanted his readers to value the extensive use of machines. He therefore associates this referent with "the American way," an over-all value that is rarely defined but is usually assumed to be highly desirable. Then he further associates the extensive use of machines with value referents like captains of industry, courage, resourcefulness, overcoming of obstacles, freedom from fear, material things, and time for recreation. Then, as a final clincher, the opposite of "the extensive use of machines"—handicraft—is related to aversions—serfdom and the Dark Ages.

To illustrate the way referents become values or aversions in another context, let us consider the customs of two wholly imaginary New Guinea tribes—the Womanns and the Kwomanns. The Womanns expose to the elements (and hence kill) the babies they do not want. Little attention is paid to the paternity of children. Women generally take the sexual initiative. It is common for the Australian colonial police to employ the Womanns to spy on other tribes and collect taxes. Physically the Womanns are dirty. They are extremely superstitious. They tend to be short, squat, and heavy, and many of them are drug addicts. Their agricultural practices are primitive. They barely scratch the earth, and because they are thriftless they live in a state of partial starvation. It is their custom to kill without warning any strangers who are found wandering about the jungles in which they live.

Now for the Kwomanns. They are exceedingly tender and affectionate toward their children and manifest an unusually stable family life. In their personal habits they are frugal and hard-working. They are also independent and self-reliant, and have been known in many instances to resist strenuously the attempts of the Australian colonial police to collect taxes. Part of their daily ritual includes bathing. For a primitive people they are remarkably free from superstitions. Physically they are tall, slender, and graceful, and, with the aforesaid exception of their attitude toward the Australian colonial police, they are kind and hospitable to strangers.

Remember these two tribes are entirely fictitious. Assume, however, that the person describing them wanted middle-class Americans to value the Kwomanns and regard the Womanns with aversion. He probably would be quite successful in achieving this objective. The reason, of course, is that the alleged characteristics of the Kwomanns are consistent with many of the important values of middle-class Americans; the alleged characteristics of the Womanns are consistent with their aversions. I should like to emphasize again that the things said about these tribes might or might not be true or might or might not be complete. If, however, they are perceived as true by middle-class Americans, the attitudes of these Americans toward the tribes might safely be predicted.

Two quite different methods can be used to teach attitudes, values, and aversions. Using one method, a teacher or an editor or a motion picture producer or an advertiser will first decide what referents he believes should be valued or regarded as aversions by the group or individual he is trying to influence. Then, using whatever procedures and techniques he believes are safe, he will try to relate the referents he wants valued with existing values, and the referents he wants regarded as aversions with existing aversions. This method means that someone else decides what another person should believe, and then proceeds to try to teach him this belief.

The second method is based upon different assumptions and involves (1) providing the individual with as rich a variety of experience with the referent as possible, and (2) helping him to figure out for himself in what way this new referent is related to his existing value-aversion system.

TEACHING VALUES AND AVERSIONS TO CHILDREN

As boys and girls in school appraise their experiences and ascribe a value or an aversion status to a great variety of referents, they face many difficulties because of their immaturity. For one thing, they are less apt to be aware of some over-all criteria or of some comprehensive values or aversions that often help mature people make decisions as to what they want to support or attack. An illustration of one of these super values might be the Golden Rule, or the principle of consistency. Teachers who are concerned with the values and aversions learned by children can often help them develop some principles which will enable them to appraise more intelligently not only their existing values and aversions but also the relationship between this system and their experiences with new referents.

It is true, too, of children—and by "children" I mean all immature people—that they are less apt to anticipate conflict in what they do in supporting their values or opposing their aversions. Some children like orange juice, but they have an allergy to it. Consequently, shortly after the orange juice has been drunk they break out in a rash. Many children, however, find it difficult to relate the value "orange juice" with the aversion "rash." Too much time intervenes. Similarly, many adults value whatever it is that the consumption of liquor does to them, despite the fact that they wake up the next morning after a drinking bout with a headache which makes them feel most uncomfortable. The ability to anticipate the consequences of behavior that supports some present value develops gradually and is obviously an exceedingly important one.

It is true, too, that children are less apt than adults to intellectualize and verbalize

about their values and aversions. By intellectualizing and verbalizing I do not mean memorizing slogans and rules and principles of behavior. I have in mind instead the desirability of many opportunities for boys and girls to express themselves to their peers and discuss the possible consequences of behavior as it relates to their attitudes, values, and aversions.

Children are quite apt to accept systems of values and aversions that are recommended to them, without examining very critically the relationship between these systems and their own welfare. In respect to many referents, for example, the attitudes of children are much like those of their parents. This means that it is relatively easy to mislead and indoctrinate children in respect to their beliefs. Teachers can help them become more independent by providing opportunities for them to experiment with their behavior and weigh the consequences.

It is rather generally known by social psychologists that the relationship between verbal information about a referent and an attitude toward it that influences behavior is not necessarily close. This is especially true in the case of children. Merely learning information, for example, about democracy does not necessarily change behavior in the sense that it will increasingly support democratic practices.

Education and Social Change in West Africa

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SINCE the close of World War II, Africa has been undergoing a revolution. It is a revolution against hunger, disease, illiteracy, and domination by foreign powers. The demands of the revolutionist have, in many instances, echoed the Four Freedoms and the Declaration of Independence.

The spark that set off the revolution may be attributed to a number of causes. Many young Africans who served in the armies of the democracies returned to their homes with the realization that there are means of relieving the impoverished lives which they led. In addition, the many slogans and speeches of leaders of the democratic countries stating the philosophy of democracy were eagerly seized upon by young educated Africans and repeated until they found their way into the most rural areas. Many areas that had remained isolated for centuries suddenly found roads being constructed through their villages. Airstrips appeared almost overnight. Modern communication was introduced. Towns grew. Ports were constructed. New industries evolved. The flow of manufactured products into hitherto remote districts increased. These events demonstrated to the Africans that not only change but rapid change was possible.

As the hopes and ambitions of the Africans increased, so did their frustrations. They could see the desired ends, but the means by which these ends could be attained were still obscure. To many, education was the answer. Unfortunately, in too many cases the education available was of an academic nature, suitable perhaps for some Western countries but not broad enough in method or scope to meet the challenge of dynamic cultural change.

AFRICAN BOYHOOD

The experiences of Baima, a young African, are typical of those of thousands of young men in West Africa who have gone to the cities, received formal educations, and then, because of lack of employment, have returned to their villages. They find themselves floundering in a once-familiar culture that has now become alien.

The small West African village of Loboa, where Baima was born and spent his boyhood, was isolated until recently from any Western influence. The majority of the villagers had not traveled more than ten miles from Loboa and, with the cessation of tribal wars decades before, had had little contact with neighboring tribes. The mud-walled, thatched-roof

houses clustered together in a manner which created among the inhabitants a sense of security against the known and unknown elements of danger from the surrounding "bush." Baima's father, who was considered wealthy by local standards, had several wives in addition to the boy's mother. From his mother and from his father's other wives, Baima received his early education. He learned that cooperation is vital to the success of village communal life. Folk stories and myths emphasized community moral values, social attitudes, and religious beliefs.

When Baima was five years old he was taken by his older brother to the rice fields. There, sitting on a platform built in the center of the field, he learned how to make rattles that would frighten away the rice birds which otherwise would eat most of the crop. When there were no birds, the older boys would tell myths and teach chants to the younger children, each myth and chant illustrating some element of village philosophy.

A wedding celebration, a funeral, the return of the young men or women to the village after initiation into the secret societies, the visit of an honored guest, the celebration of a good harvest—any event might be provocation for an outbreak of dancing and chanting which lasted for several days and nights. Baima and the other children would join the long line of dancers weaving through the narrow areas between the houses, while chanting songs which in many cases were appeals to the spirits. Dancing was one method of communicating with spirits, but there were many others—an offering of a goat or a chicken, the making of a fetish, or the buying of a charm. In any case, gaining favor or atoning for the breaking of a taboo was a comparatively simple matter that could be arranged by the local "medicine man."

Some evenings might be spent listening to the elders discuss a legal case that would soon be brought before the chief. An elaborate system of unwritten law had evolved, and children, by listening to the elders and watching the cases that were tried in the local "palaver house," learned the laws of the village.

EDUCATION IN SECRET SOCIETIES

The Poro, a secret society for men, provided Baima's first formal education. As a young boy he had been taken into the "little bush," where a circumcision rite had been performed. He had remained in the "little bush" for two days. During this period, he had participated in an elaborate ritual which stressed the teachings of his mother, ancestor worship, and respect for the elders.

At the age of nine, Baima had been sent to the "big bush" of the Poro. In this restricted area of the forest he had been given what might be considered advanced courses in law, religion, agricultural methods, and medicine. At the end of the training period, which in Baima's case lasted two years, he returned to the village, where he was considered no longer a boy but an adult. The Poro experiences bind together all men in the village. The rites and rituals are known only to members of the society.

When Baima returned to his home, he found a road being constructed through the center of the village. This road ran from the capital of the country to a mining concession fifty miles in the interior. Within a short time, mining trucks carrying iron ore to the port were traveling through the village, and soon other trucks were converted into buses to carry passengers to the markets in the city. His village, once isolated, had become accustomed to a constant stream of people

from other chiefdoms, as well as travelers and workmen from the Western nations, who were on their way to and from the mines. The few from Loboa who made the journey to the city brought back accounts of the wealth and power of men in the city. It soon became evident that if one hoped to join the leaders in the city, it was necessary to learn their language and go to their schools.

EDUCATION IN A CITY SCHOOL

Baima's father, one of the few wealthy villagers, determined that his son must become one of these leaders. The village had no school, nor were there any in the neighboring towns. The only solution was to send the boy to a school in the city.

The boarding school which he attended for eight years followed a traditional curriculum, with emphasis on mathematics, European history, general science, and English. But while Baima was following a curriculum that is similar to that of schools in many Western countries, he was at the same time being taught by his associates to look with contempt on anything "native." Western style of dress in any form was considered superior to the native robe. The brief introduction to science developed in Baima a scorn for all native medicines and religious beliefs. While he was working diligently to emulate those in the city, they in turn regarded him as "native" in spite of his education. As a result, he found his companions among those who, like himself, were no longer a part of the old, and yet were not acceptable in the new culture.

At the end of eight years, Baima attempted to secure employment in the city. There he found hundreds of other young men who were untrained for any specific vocation and therefore unable to find employment which would make use of their education. Discouraged and without financial resources, Baima returned to his village.

CHANGING CHARACTER OF RURAL VILLAGES

Baima found that the village too had changed in the years since his departure. Most of the young men had gone to work in the mines or in the capital as laborers. Loboa was rapidly becoming a village of old men, children, and women, who maintained farms while able-bodied men were away working.

A store selling cotton cloth and other articles such as are stocked in a notions store in the United States had been opened. Foreign currency had become the medium of exchange, replacing the former locally manufactured currency and barter. With the increased use of foreign currency, materialism grew proportionately. Food which was needed in the village was sold in the city market in order to make the money which had suddenly become so important.

The old tribal laws and the power of the Poro became weaker. Nevertheless, although the local government institutions were in a period of decline, the power of the local medicine men remained strong. Little had been done to improve the health or agricultural standards of the people. The same tropical diseases which have plagued Africa for centuries continued their destruction of body and spirit. The agricultural methods used by Baima's ancestors were still in use. For each crop, a new area of bush was laboriously cleared and burned, hoed and planted, while the land used the previous year remained fallow for seven years. At harvest time, rice was cut one stalk at a time with a small knife.

The village had changed; the change in Baima had been even more revolutionary.

It was impossible for him to assume his former position in the village and there was no opportunity to utilize his newly acquired knowledge. Some villagers regarded him with respect because of his education in the city, while others looked upon him with distrust. All of the other young men his age had been married for some time, but Baima wanted a wife who had the same educational background as his, and it was impossible to find such a girl in the village or the surrounding villages. He had been educated to look with disapproval upon polygamy, yet he was living in his father's house, a polygamous household. He worked with the men in the village clearing the bush for the rice crop, performing the same task in the same way he would have if he had never left the village. Although he remained a member of the Poro, the ritual and rites meant little to him.

FUNDAMENTAL EDUCATION IN RURAL AREAS

It was at this point in Baima's life that his village and several surrounding villages were selected by the government for an experiment in fundamental education. This experiment called for the establishment of village schools. These would be four-year schools and would emphasize literacy, health, and agriculture. The teaching staff would consist of young men like Baima, men who had some formal education and were willing to undergo training in methods of teaching reading, writing, and health. Each teacher would also receive instruction in fundamentals of agriculture, a background that would be sufficient to enable him to work with the agricultural extension workers who were being trained by an agricultural specialist. Attached to each school was a demonstration garden in which each child had his own plot. This soon became a demonstration garden for the village. Each morning the students in the school began their day by working in the garden, receiving instruction in new methods of agriculture, soil sterilization, and the making of compost piles and seed beds.

Health was taught by demonstration. All drinking water used by the children was boiled in the classroom and discussions were held on the danger of drinking "raw" water. The revival of soap-making brought about a decline of skin diseases. The use of pit latrines rather than rivers was encouraged and experiments were carried out in methods of protective covering for the feet.

One period a day was spent on oral English; all other classes were conducted in the local language. Storytelling was encouraged and, on the basis of the stories known so well, reading was begun. Gradually arts and crafts found their way into the curriculum. Rather than rejecting African products as inferior, a certain pride developed in carving some object out of native wood or designing a new bamboo mat. The old craftsmen of the village were eager to share their knowledge with the students in the schools.

In training Baima and other young men who had a similar background for their work as teachers or agricultural workers, one of the most important tasks was to stress the necessity for patience. It was emphasized that no school would be opened unless a village requested it. Leaders of the men's secret society and the elders of the village were called in frequently as advisers. To these men, change was inevitable. The road had demonstrated that fact. Now the problem was how to bridge the chasm between the old and the new. What was the best method of establishing a code of laws and religious beliefs that would fill the partial

vacuum that had occurred? These men saw the school as the agent that could best perform this function, and consequently they gave it their full support and cooperation. They visited the schools and consulted with the teachers, and their approval was noted by the people in the villages.

Approval by the secret society meant approval by the medicine men, as they are important members of the society. In many areas, the treatment offered by the local medicine men was rational according to Western standards, and no attempt was made to interfere with such treatments. Midwives, who were leading members of the women's secret society, were invited to assist the doctor in the local clinic. Many of these women were very efficient, and once good will was established they were willing to have their patients turn to the doctor if a difficult delivery was anticipated.

EDUCATION WITH AN OBJECTIVE

Baima's participation in the project gave him and the other young men who had been selected a means of constructively using their education for the betterment of their people and villages. The education which had been acquired primarily for the purpose of developing themselves had now been turned to serving the community. Through this service they had gained not only self-respect but also a sense of achievement in the knowledge that they were among the first of many young Africans playing an increasingly important role in the progress of their countries, for Baima's is by no means an isolated case. Nationalistic trends in West Africa have stimulated a demand for education. Hundreds of Baimas are assisting in teaching, agricultural work, road-building, and other phases of mass education designed to raise their countries' economic, social, and educational level.

Recent experiments throughout West Africa, such as the Joint UNESCO Liberian Educational Project, United States Point-Four Operations, and the efforts in fundamental education in the Gold Coast, Nigeria, the Cameroons, and other countries, have proved that formal education designed only for the few who become professional men must be supplanted by methods designed to educate large masses of people to assist in the development of these nations—the mechanics, road builders, nurses, teachers, accountants, carpenters, fishermen, housewives, farmers, and other workers so vital to the progress of a nation. While the various educational projects have been confined to relatively few towns or areas in each country, the success of these projects points the way to conversion of the entire educational systems of these countries.

NEW CONCEPTS OF EDUCATION FOR AFRICA

This new education must be based upon certain principles which have been demonstrated in the various projects and by the many cases such as that described above.

In establishing village schools, full use should be made of existing cultural agencies. In the West African village, this would include the secret societies that are concerned with initiation rites, as well as the council of elders and chiefs. Every effort must be made to have representatives from the above-mentioned groups consult with those responsible for the schools. If the change is to be effective in the culture, it must come about by the voluntary cooperation of the people. Education can then proceed as fast as the people are willing to accept change. The

school should be the agent to help people in a rapidly changing and often confusing culture. It will then be a stabilizing influence rather than one which introduces irrelevant elements.

Formal education must be carried on within the social and domestic milieu of the young African. Village schools where the child remains in his own home while receiving his early education are imperative. Too often in the past, children have attended boarding type schools and thus have become alienated from their homes and villages. Through village schools it is possible to help the entire village develop. From the village schools, those who have evidenced outstanding ability could be selected to attend secondary schools and schools of higher education.

The curriculum of the village schools should be designed to meet the needs of the community. In many communities, the needs are health, agriculture, and literacy as a means rather than an end. In others, animal husbandry will play an important role. Each area should be studied before constructing a curriculum for the school. Too often, curricula are copied from countries whose needs and cultures are vastly different from those of Africa. Such a curriculum, usually of an academic nature, contributes little toward helping the child in his culture.

Teaching materials should be produced which will be meaningful to the children in the village. There is urgency for books and teaching aids which will be within the understanding of the young African. Reliance on foreign texts has encouraged memorization and verbalization. There is little in these texts that is within the frame of reference of a child in an African village. Too few materials are available in the vernacular, although great strides have been made as a result of the Laubach and other methods. Owing to this dearth of materials for African schools, students very often know the history and geography of Europe and the United States, but know little of their own social and governmental structures or of the practical skills and measures which will enable them to eradicate disease and poverty or assist in the economic advancement of their own areas.

Young Africans should be encouraged to retain pride in their own cultures. Identification of civilization with "Westernization" has meant that many young Africans regard with shame the arts, crafts, and mythology of their people. Revival of interest in the handicrafts and arts of Africa should be stimulated. African art is a living art; Africans should be encouraged to keep it alive.

Education must raise the hopes and ambitions as well as the skills of a people. The proper education will enable Africans actively to participate in programs designed to raise the entire standard of living. Those who have been selected to work on such projects have shown their countrymen that the future of Africa lies in the hands of Africans; that education is not without purpose but can be put to use in the remotest village; that poverty and disease are not the heritage of their people.

Inspiration has been given to countless people who were once without hope. Much of West Africa has achieved or is in the process of achieving self-government. Few changes in history have been as revolutionary or have covered as much territory as those which are taking place in Africa today. The success with which Africa is able to attain not only political freedom but freedom from want, hunger, and disease will depend upon how rapidly mass education can be introduced.

Trends in Content of High School Mathematics in the United States*

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EDUCATIONAL programs of high schools in the United States have developed in the twentieth century under the influence of researches in educational psychology, the impact of John Dewey's philosophy of education, and growth in industrialization. Each of these three disparate influences has had its effect on the schools.

The psychological experimentation carried on by E. L. Thorndike, in particular his extensive program of test construction and testing, has had a direct effect upon the teaching of mathematics. Earlier, under a psychology that stressed mental discipline, mathematics had a secure position in the schools. Teachers could easily justify its importance in the curriculum as one of the best subjects for training the mind. However, Thorndike's careful investigations of the effects of teaching arithmetic and algebra showed that mathematics was no better than any other subject in promoting transfer of training. These results were a great blow; the status of mathematics in the schools was challenged by educators, who had a new psychology and a new conception of the purpose of education to support their views.

The impact of John Dewey's pragmatic philosophy had reverberations that still echo in the classrooms of teacher-training institutions. "Learning by doing" and "experiences from real life" became phrases familiar to every high school teacher. The immediate effect on mathematics instruction was that more activity was introduced into classroom procedures, and applications of mathematics to real life situations were sought. These changes in methods of teaching mathematics were good so long as they were not carried to extremes. There were some teachers, however, who attempted to exclude any mathematics that could not be justified on the basis of meaningful activities for children or application to a real life situation.

As the economy of the United States changed from largely agricultural to predominantly industrial, there emerged in certain large industries labor unions. Laborers were paid higher wages and worked shorter hours. Many of these workers used their increased leisure and their better competitive position in the economy not only to improve their own educational backgrounds but also to influence the sort of education their chil-

* A paper presented to Section VII, Philosophy, History and Education of the International Congress of Mathematicians held at Amsterdam, The Netherlands, September 2-9, 1954.

dren were getting. The high schools had curriculums designed to prepare students for entrance to college. There appeared in high schools large numbers of boys and girls who had neither the ability nor the desire to enter college. The question was asked, How can these boys and girls be prepared to take their places in society?

The effects of these influences, in summary, are as follows. The development since 1900 of educational psychology and educational testing has undermined the former secure position of mathematics in the curriculum. Philosophy of education, as developed by John Dewey and his school, has changed in radical fashion the point of view of educators concerning the objectives of education and the structure of the curriculum. As the economy of the United States grew in industrialization, more families could afford more education for their children. Boys and girls stayed in schools more years. In 1900 only 11.4 per cent of the secondary-school age group were enrolled in schools; in 1920, 43 per cent were enrolled; in 1934, 64 per cent; and in 1940, 71 per cent. Meanwhile the population of the United States as a whole was increasing; thus, larger and larger numbers of students were crowding school buildings.

Among such a heterogeneous mass of high school students, teachers found individuals of varying backgrounds, varying abilities, and varying interests. All were entitled to free public education. All clamored to be served. Many pressures were brought to bear on school systems by parents and interested lay groups. Efforts were made to devise programs of instruction in which all students could find success. It is easy to see that such programs had an effect upon the mathematics, for example, that would prepare a student adequately for college work.

Leaders in mathematics education could see no alternative but to urge upon schools a two-track program in mathematics beginning with the first year of high school, approximately the fourteen-year-olds. One track in mathematics offers college preparatory courses—elementary algebra, plane geometry, intermediate algebra, and so on. The other track provides material that is loosely called practical mathematics. Gradually the latter group of courses, designed for the non-college preparatory students, came to be known as general mathematics courses. At first, general mathematics was offered only in the ninth grade, but as these students progressed in high school and stayed in school more years, the general mathematics programs have been extended into the upper years of our high schools. The availability of general mathematics courses for boys and girls has allowed high schools to exercise a certain amount of weeding out of poor students from the technical mathematics courses. Hence, more time can be given to preparing adequately those students who are going to college or to advanced technical schools.

These general mathematics courses consist largely of arithmetic. Very little algebra is included beyond that necessary to handle work with simple formulas associated with common plane and solid figures. Often no work at all is done with directed numbers. The practical geometry material is that associated with measurement. Sometimes a little work in numerical trigonometry and use of the slide rule is given.

A second trend in high school mathematics in the United States is the concern of leaders with the discovery of students gifted in mathematics and with

their education. Much is being written regarding these members of our high school student bodies. Much research is being carried on to help teachers discover these students and to suggest means of developing their mathematical knowledge. Some large city school systems have special classes for able students in science and mathematics; there are a few instances where special high schools of science and mathematics are set apart. To be eligible for these special classes or high schools, entrance examinations must be passed.

Unfortunately it is not possible to make provision for gifted students by separate classes or schools in smaller cities and in rural areas. Individual teachers must do what they can in their regular classes. Much work is directed toward a resolution of this situation. How can a teacher present challenging mathematics to the gifted students and at the same time carry on work with those who are less able?

In our high schools much dissatisfaction exists among teachers of mathematics. On the one hand, they are dissatisfied with the traditional organization of the present mathematics program. Those who have had contact with a good college mathematics program realize the inadequacies of high school courses based on the geometry of Euclid and the algebra of Al-Khwarizmi. These teachers believe that it is possible to delete obsolete material from the present program, devise new sequences of topics, and bring capable students along in mathematics more rapidly. On the other hand, there are a few leaders in mathematics education who would like to replace the classical approach to high school mathematics with a contemporary approach. Such a procedure implies a complete reorganization of the high school mathematics program. The principal argument against such revolutionary changes is the very, very small number of teachers who could teach in such a program. Nevertheless, there are groups in several states of the United States working on mathematics programs according to these two points of view.

Both groups of mathematics education leaders are displeased with the logic-tight compartment—almost entirely separated—teaching of arithmetic, algebra, and geometry. The one group, making its results felt in several states, is working toward an integrated high school mathematics program that weaves together arithmetic, algebra, geometry, and trigonometry. No sharp break with tradition in the content of this program appears, but there is a great departure from tradition in the organization of mathematical topics. The people who are writing the textbooks for this program are familiar with contemporary mathematics. As a result, their presentations of topics have a modern flavor.

The second group wishes to make a complete break with the past. The members of this group are working to bring the concepts of modern mathematics down to the high school level. Their efforts are devoted to laying a foundation in high school for those concepts that are important today in advanced mathematics. This approach does not necessarily imply that all classical high school mathematics will be discarded, but it does imply that the way in which the vocabulary and symbols of mathematics are presented is being carefully studied to bring out clearly those ideas that are fundamental to all modern mathematics. As a result of the work of this group, in some of the more recent high school textbooks much more attention is being given to mathematical logic and to postulational

systems. In many cases, *descriptions* of technical mathematical words are being used to make clear to beginning students a concept rather than strict *definition*, because at that level a definition cannot be given that is entirely correct. Those writers who are members of this group are convinced that students experiencing such a program will arrive at college with a better conception and a better understanding of what mathematics is.

Another phenomenon of high school mathematics in the United States is that less emphasis is being placed on developing mathematical skills, while more emphasis than formerly is being placed on teaching for meaning and understanding of mathematical processes. This does not mean that drill on a process is neglected, but that the drill comes after a student understands the process. In elementary schools much time is spent on rationalizing arithmetic operations; teaching begins with manipulation of concrete objects, proceeds to semi-concrete objects, to abstract symbols, and then to applications. As students progress in mathematics, these experiences are continued on a level suitable to their maturity. There is less of a teacher showing students a process and telling them to practice what was shown and more of working out a process by students under the guidance of the teacher. Then, after the students understand what they have done, the teacher assigns exercises for the students to practice. It is believed, and there is experimental evidence to support this belief, that such instruction leads to more permanent learning and to learning that more easily transfers to new situations.

To summarize, the trends in the content of high school mathematics have been influenced by twentieth century developments in psychology, philosophy of education, and technology. There is dissatisfaction with the mathematics program because of accumulated evidence that much temporary and compartmentalized learning in mathematics exists. In order to meet the challenge of large, heterogeneous student bodies a two-track program has appeared. One track satisfies the needs of the non-college preparatory group; the other prepares students in what might be called technical mathematics. To do a better job of teaching with both types of students, efforts are being made to break down the divisions between arithmetic, algebra, and geometry, for example, and to substitute for these separate courses programs in mathematics. There is a difference of opinion concerning the best way to do this. Some believe in a complete reorganization of high school mathematics courses that would bring to the high school some of the concepts of contemporary mathematics. Others believe in a reorganization that would weave together, or integrate, topics in present-day high school mathematics. In any case, all leaders in mathematics education are committed to what is called meaningful teaching of concepts rather than show-and-drill teaching.

Does Foreign Language Belong in Elementary School?*

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AMERICANS are notoriously intolerant of those who speak English with an accent. Jokes told with imitated accents are almost certain to draw laughs. It is intriguing to speculate why it is that we look down upon those who do not speak English like a native, while in other countries people are almost pitifully appreciative of our halting attempts to speak their language. They seem to realize, as we do not, how deep a part of a person is his language. Love me, love my language! To attempt to speak in another's language is to pay him a high compliment.

While Americans have laughed at the way people of other origins handle English, they have never been strongly inclined to learn other languages. First our real, then our imagined, isolation from Europe and Asia has made Americans look upon the learning of a foreign language as part luxury, part distasteful chore.

NEW ATTITUDES FORMING

Now that we find ourselves playing a new role in the world, attitudes toward foreign language are changing. Thousands of ex-GI's, technical assistants, commercial representatives, and tourists have experienced the frustration of not being able to communicate fully with people in other parts of the world with whom they had much in common; they have experienced also the thrill of establishing fragments of communication through words and phrases clumsily used; they have suffered the embarrassment of finding people of other countries speaking our own language fluently; they have known the humiliation of looking on while fellow Americans arrogantly and ignorantly placed the entire burden of communication on the other party, even berating him for not understanding English. Some of them have found the second-generation Italian or Polish-American, say, a handy person to have around when there was need to be understood in a strange land.

The growing number of exchange

* During the 1954 Spring Session three graduate students at Teachers College prepared papers on foreign language in the elementary school. These students were: Rose K. Levine, substitute teacher in the junior and senior high schools of Mount Vernon and New Rochelle, New York; Leo Aschenbrenner, sixth-grade teacher in Port Washington, New York; and James W. Taylor, sixth-grade teacher in Great Neck, New York. These individuals kindly released their papers for use in preparing this article. Professor Miel, who drafted the article, taught Latin and French in Michigan high schools before specializing in curriculum improvement and elementary education.

teachers, students, and other visitors from abroad, as well as the new immigrants coming to the United States each year, bring home to many Americans who never leave our borders the need to respect other peoples' languages, appreciate their attempts to learn ours, take the trouble to understand English spoken with an accent, and make the newcomers feel more at home by exchanging language lessons with them. The importance of knowing something of one another's language was realized by the New York City policemen, who recently gave spare time to learning Spanish so that they might get along better with the Puerto Ricans moving into their districts.†

How long it will be before this new awareness of the world's language problem is reflected in increased enrollments in foreign language classes in our schools and colleges it is hard to say. The number taking foreign languages in our high schools has never been large and it has been dropping off:[1]

> In 1920, 27 per cent of high school students were enrolled in a foreign language class. By 1950 this figure had dropped to 14. A similar though less pronounced drop has occurred in colleges and universities. Proportionately fewer and fewer of our young people are taking the opportunity to study languages other than their own.

The Modern Language Association, concerned over declining enrollments in a field which it believes has a rightful place in general education, launched at the end of 1952 a three-year study, to be financed in part by the Rockefeller Foundation, to determine the role which foreign languages and literature should play in American life.

FOREIGN LANGUAGE IN ELEMENTARY SCHOOLS

Foreign language teaching in the elementary school, though much newer on the scene, has already made considerable headway. A recent survey showed that in the fall of 1953 a total of 155 programs existed in public elementary schools in 145 communities of thirty-three states and the District of Columbia.[2] According to the report:

> . . . at least 145,000 pupils were receiving language instruction in 684 schools. And since the first of these programs began in 1921, at least 573,000 pupils had been introduced to Spanish, French, German, Italian, or Latin.

Some of these programs, the investigators indicate, may be found only in the last two years of eight-grade elementary schools.

While the number receiving instruction in foreign language on the elementary school level still is not large, it is increasing. No small amount of credit for this is due to Earl J. McGrath, who organized in January, 1953 the First National Conference on the Role of Foreign Languages in American Schools. This brought together some 350 persons—school administrators, language teachers, professors of education, psychologists, producers of teaching materials, representatives of business and government, members of veterans' organizations, and parents. To this group McGrath made a strong statement proposing that one solution to the prob-

† Reported in the *New York Times* for October 13, 1954.

[1] Earl J. McGrath, former United States Commissioner of Education, in an address at the First National Conference on the Role of Foreign Languages in American Schools, held in Washington, D.C., January 15 and 16, 1953. Reprint by D. C. Heath and Company, Boston, p. 5.

[2] Kenneth W. Mildenberger, *Status of Foreign Language Study in American Elementary Schools, Fall Term, 1953.* Washington, D.C., U. S. Office of Education Committee on Foreign Language Teaching, March, 1954.

lem of increasing study of foreign language would be to begin it in the elementary grades.

After discussion, much of which affirmed the need for extending opportunity for language study in the elementary schools, the Conference passed unanimously a motion that the United States Commissioner of Education appoint a continuing advisory committee to aid him in furthering the aims of the Conference.[3]

Influenced by the Conference, the National Parent-Teacher Association, with some 38,000 branches, pledged itself to keep informed of new proposals for teaching foreign language in the elementary schools and to do all possible to bring such programs into the curriculum.[4]

PRACTICES DEVELOPING IN ELEMENTARY SCHOOLS

From reports by elementary schools in which foreign language has been introduced we can see some patterns emerging. Selecting languages to be taught, securing qualified teachers, deciding when to begin a language and how often and how long to give instruction, settling upon appropriate methods, and fitting foreign-language instruction into the total curriculum—all have engaged the efforts of educators in the elementary school and specialists in modern languages.

What Languages Shall Be Offered?

The languages usually offered are those that had already found their way into the high school curriculum. Some choices have been influenced by the teachers available. Some schools have tried different languages before settling on Spanish as the easiest for children. In Louisiana the State Department of Education decided on French for the elementary schools because of the importance of that language in the historical and cultural background of the state. Border states like Texas and California tend to emphasize Spanish. In Washington, D. C., a questionnaire to parents was used to decide the issue.[5] A few teachers have reported introducing on their own initiative bits of a language they know. Helping children in school to preserve the second language they may have started learning in their home and community is uncommon, unless it happens to be among the time-honored ones in the school curriculum.

Where Shall Competent Teachers Be Secured?

The "pioneers" in introducing foreign language into the elementary school have had to use whatever trained personnel was available. A survey of the literature shows children being taught by elementary classroom teachers who happen to know a foreign language, "borrowed" secondary school teachers, college teachers and language majors, lay members of the community, and specialists employed for the purpose. Most of these lack either the ability to guide young children skillfully or the ability to speak the foreign language fluently and with a native accent. Some lack both. Only the classroom teacher is in a position to integrate the learning activities with the rest of the curriculum in such a way as to contribute to coherence in the entire program.

The teacher must also have a knowledge of the culture and a sympathetic

[3] Marjorie C. Johnston, "Teaching Foreign Language in Elementary Schools," *School Life* 35:85 (March, 1953).

[4] Mrs. Newton P. Leonard, "Languages for Our Children," *School Life* 35:84 (March, 1953).

[5] Emilie Margaret White, "Foreign Language in Washington, D.C., Elementary Schools," *School and Society*, 76:279 (November, 1952).

understanding of the people using the language being taught.

In view of the relative newness of the program and the lack of materials, the teacher must be both enthusiastic about the program and unusually resourceful.

College language departments are already at work on the problem of preparing language specialists for work in elementary schools. Meanwhile, school systems are using all sorts of devices to increase and supplement the competence of the classroom teacher. Workshops, extension courses, pamphlets and books, resource persons in communities, television, and recordings all are being used.[6]

When, How Often, How Long?

Foreign language in the elementary school frequently is introduced in the fourth grade, although there are cases where it appears below or above that point.

In Somerville, New Jersey, the study of foreign languages is begun in third grade and is continued through eighth grade. In alternate years the study of French and Spanish is begun on a particular grade level. During one year grades three, five, and seven study French; grades four, six, and eight, Spanish. As is true in most systems employing parents, special teachers, or secondary-school teachers, there are periods fifteen to twenty minutes in length for a specified number of days per week.[7]

Where the classroom teacher is involved in the program, the specific period is frequently eliminated and the foreign language becomes part of the daily living of children in a classroom. The second grade of Kings Point School, Great Neck, New York, exemplifies this type of program. The incidental use of Spanish permeates this class, and when a counting situation arises, for example, this may be done in either Spanish or English. Greetings are exchanged, words and expressions are introduced, and even reading charts indicate attention to the foreign language.

What Methods and Materials Shall Be Used?

A panoramic view of practices in elementary schools now teaching foreign language shows an exclusively aural-oral approach, for the first year or two at least. Great stress is placed upon conversation and pronunciation. Vocabulary is taught from objects and pictures that can be seen and touched, and through dramatization of social situations within a child's experience. This is often supplemented by games, activities, and songs, and sometimes by field trips, tapes, and television. Without being aware of the underlying principles of grammar, children learn how to handle its different elements. Since usually no English is spoken during the period of foreign-language instruction, the child can develop an automatic response to oft-repeated questions and gain a "feel" of the whole sentence as a unit, in direct contrast to the painfully built-up sentences which come from trying to combine rules and vocabulary lists. No attempt is made to imitate the secondary schools in the amount of material covered within a year. Value is placed on quality of achievement rather than on extensiveness.

After one, two, or three years of an aural-oral program, the children have acquired a reading readiness. They begin to read and write material which for the most part they have experienced orally.

[6] Symposium on "Foreign Languages in the Elementary Schools," *NEA Journal*, 42:479-81 (November, 1953).

[7] Margaret McCormack, "Foreign-Language Program," Somerville, N. J., Public Schools. Mimeographed. July, 1953.

While some schools use published materials, many others construct their own. The best programs are not limited to reading; they offer opportunity for discussion, creative writing, dramatics, reports, scrapbooks, and visual materials. The aural-oral approach is not abandoned, but rather supplemented.

What Place Shall Foreign Language Have in the Total Program?

In the elementary schools reporting their practices there are frequent attempts to correlate the language program with the social studies and with art, music, arithmetic, and language arts as well. The way in which a teacher of second grade integrates Spanish with the on-going class activities has already been mentioned.

In Seattle, Washington, although no special time is set aside, several teachers have been alert to opportunities to correlate Spanish with other activities. The third grades use a supplementary reader which contains more than one hundred Spanish words. Two years ago, when informal instruction in Spanish was extended to fifty elementary schools, plans were formulated for a continuing informal program for the junior high school.[8]

CAUTIONS TO BE OBSERVED

When an innovation in education begins to achieve momentum, it is well to caution against "jumping onto the bandwagon" and instead to advise reflecting on the soundness of the claims made, studying the nature of the problems created, and looking for alternative or additional solutions.

How Sound Are the Claims?

In addressing the Conference on the Role of Foreign Languages in American Schools, McGrath stated two reasons for offering instruction in modern foreign language in the elementary school:[9]

> First, more Americans should be able to use a foreign language. The best place to reach large numbers of our future citizens is in the elementary schools; and second, languages should be begun in the early grades because children learn then most easily and precisely.

McGrath's second proposition was elaborated by Dr. Wilder Penfield, Director of the Montreal Neurological Institute, in an address before the American Academy of Arts and Sciences:[10]

> There is an age when the child has a remarkable capacity to utilize these areas [of the cerebral cortex] for the learning of language, a time when several languages can be learned simultaneously as easily as one language. Later, with the appearance of capacity for reason and for abstract thinking, this early ability is largely lost. One who is mindful of the changing physiology of the human brain might marvel at educational curricula. Why should foreign languages (dead or alive) make their first appearance long after a boy or girl has lost full capacity for language learning?

Let us consider first the proposition enlarged on by Penfield. This passage was sent by the Modern Language Association to a number of leading neurologists and psychiatrists with the request that they indicate whether or not they and their professional colleagues accepted Dr. Penfield's main point. In the newsletter reporting the replies, ten specialists in the field of neurology and three in psychiatry were quoted. Seven of the neurologists supported Penfield's main contention—that language is learned more

[8] Marjorie C. Johnston, "Uno, Dos, Tres," *NEA Journal*, 41:570 (December, 1952).

[9] McGrath, *op. cit.*, pp. 8-9.

[10] "Consideration of the Neuro-physiological Mechanisms of Speech and some Educational Consequences," *Transactions* of the American Academy of Arts and Sciences, 82:199-214 (1953).

easily by young children—some with thought-provoking qualifications, while three of the neurologists and all three of the psychiatrists took major exception to his statement.[11]

Excerpts from the important reservations and disagreements follow:

I would very much like to know whether his opinion is based on any specific educational or neurological research . . . I have to confess that I am very much afraid it is not completely correct. I have heard . . . that there have been research data to prove that young children learning two or more languages at once are held back in their general intellectual maturation. Since I have been particularly interested in the problem of language disabilities . . . I have myself made some observations to the point. If a child does have a reading disability or other type of language disability, the teaching of the second language confuses the child in the acquisition of language skills in English and results, therefore, in some general emotional confusion and retardation. Since ten per cent of the school population has such disabilities, this problem should be valued.

I would not . . . go so far as to say that in the adult "this early ability is largely lost," for some elderly people show remarkable facility in learning foreign languages. We must make allowance in any such generalization for individual differences in native endowment and for the lasting effects of early training. It may be questionable whether there is "a time when several languages can be learned simultaneously as easily as one language"; but there can be no doubt that the most favorable time to begin to learn a second language is in the preadolescent period. A child who has learned a second language "naturally" at this age is prepared to acquire additional languages in later life with much greater facility.

Before applying the generalization to any specific individual I would want to know whether he was one of those children who have specific difficulties in language learning, and for whom learning one language is tough enough, two or three languages becoming an almost insuperable problem. . . . In the quotation there is no reference to the possibility of interference between the two [dominant] hemispheres, or to any other type of failure or coordination between them. There is evidence that some difficulty makes trouble in the learning of languages, particularly during the early years of life. . . . Closely related is the problem presented by children whose learning apparatus is hitched primarily to their auditory mechanisms as opposed to those youngsters whose learning apparatus is hitched primarily to their visual mechanisms. I wonder if Dr. Penfield's generalization is equally valid for both groups? . . . Further light on this question might be shed by a study of what happens to the spontaneous ability of the small child to draw and paint. This is usually lost just at the time when the capacity for reason and for abstract thinking . . . starts to develop. But do we not have to keep in mind the fact that this is the period when emotional problems begin to kick up trouble, which also plays a significant role in the acquisition of languages?

In my opinion there is . . . evidence against such a stratification of abilities as is suggested by the senescence of language ability and the later appearance of reason and abstract thinking. Despite Piaget's work I think you can demonstrate reasoning in the young child and I also think you can demonstrate language facility in the older child. . . . For those of us in the colleges the teaching of foreign languages in the elementary school would be a very fine thing, but my guess is that it would have to be shown to be very much more economical than the later teaching of language if it is to be introduced widely. The reason is of course the proper reluctance in the United States to provide a differentiated curriculum any earlier than necessary. . . .

It should also be emphasized that unless a language is used it can be lost. . . . There is a culture pattern among young people in this country that disapproves of any child who speaks a foreign language.

I would agree that the first paragraph of

[11] *FL* Bulletins, No. 1, Modern Language Association of America, 6 Washington Square North, New York 3, N.Y. (April 1953) Rexographed.

Penfield's statement has considerable experimental base that is not completely proven or necessarily generally accepted. I believe that the remainder is a matter of opinion on which educators have probably more data on which to base an opinion than the medical profession as a whole.

The gist of the approbations and reservations with regard to Penfield's statement seems to be:

1. Generally speaking, childhood is a time when language is learned easily, but it is not the only time, and in the case of some individuals with language difficulty, it may be the poorest time to introduce a second language.

2. The foreign language learned in the elementary school may be forgotten unless it is used.

3. In making a decision on foreign language in the elementary school, educators must take into account more than ease of acquiring a good accent.

This point was dealt with in considerable detail by Nicholas Hobbs at the First National Conference on the Role of Foreign Languages in American Schools.[12] Hobbs analyzed reasons for including foreign language in the school curriculum. He pointed out that the choice of age for beginning instruction should be determined by the objectives sought; that there is no one best age for all individuals and all purposes. Each age has its advantages and its limitations. The childhood years, according to Hobbs, have an advantage in linguistic flexibility and in ease of learning directly the concepts of a second language. The late high school and college years have an advantage in that they are the years of greatest learning ability in general. The adult years have an advantage in that motivation often is brought to a point where the individual is interested in mobilizing all his energies and abilities to learn the needed language.

If maximum efficiency is sought, Hobbs continues, that is, if there is desire for the greatest amount of learning in the shortest period of time and we are concerned with effectiveness of communication rather than elegance of expression or accent, then language instruction should probably be given to adults when they keenly feel the need for a second language.

If we are interested in the cultural values of language, with ability to read the literature of another language, Hobbs suggests that the traditional placing of foreign language in high schools and colleges is indicated.

However, if we are interested in training articulate leaders who can sit down with people of other nations as friends and solve common problems, then, Hobbs believes, a new pattern of language instruction must be found. If better *communication* among men is our goal, then we must start in the elementary grades and continue all through the years of schooling and into the years of adult responsibility.

If we now return to McGrath's first proposition—that "the best place to reach large numbers of our future citizens is in the elementary schools"—we can consider where this line of argument leads. The availability of children is a useless, even dangerous, criterion for deciding to insert something into the elementary school curriculum. Each decision must be made in the light of all the needs of children growing up in today's world, the capacities of the children, and the time and facilities available.

What Problems Are Created?

As we look back, then, on the practices being followed in elementary school for-

[12] "Child Development and Language Learning," *School and Society*, 78:17-20 (July 25, 1953).

eign-language teaching and the claims made for giving this instruction to children, we find certain problems to be solved.

One of these problems relates to what is to be included in general education in the elementary school. Should all children receive instruction in one or more foreign languages? If not, do we run the risk of "providing a differentiated curriculum," to use the words of one of the respondents quoted earlier? How shall we avoid the selective arrangements of European schools, where language is offered only to those qualifying for certain schools? Tests commonly applied in American schools in cases where a selected group is to be served are: (1) better than average IQ, (2) better than average achievement in reading and other subjects, (3) teacher judgment, and (4) parental consent. If we require foreign language of all, what are we doing to the children with the language disabilities cited above by the neurologists? What will we do about differences in learning rates? Where will we find the time in an already crowded curriculum? What about the conclusion of some investigations that, for efficient language instruction, a class of more than fifteen or twenty pupils is very difficult to handle? [12]

A second, closely related, problem is the level of proficiency to be sought. If foreign language is made a part of general education, it must be decided whether children are to be merely introduced to a foreign language or to be equipped with a second language which they can speak fluently. How many and what kind of teachers would it take for the latter goal? How early would instruction have to be started to capitalize on the more plastic and modifiable speech apparatus characteristic of the early years of life? The reader will recall the words of one reply to the Penfield paragraph, "It should be emphasized that unless a language is used it can be lost." What kind of a program of instruction will be required to maintain the language learning started in the elementary grades, especially since it will not be reinforced in the typical American home and community? We have only to look at the experience of Puerto Rico and the Philippines in teaching English as a second language to see the difficulty of the task we are undertaking.

A third problem is to know which of the large number of languages a given individual may need as an adult. One neurologist believes that a "child who has learned a second language 'naturally' at this age [preadolescence] is prepared to acquire additional languages in later life with much greater facility." Do we have enough evidence on this point? What kind of knowledge of the one language is required in order for this transfer value to be realized?

A fourth problem is to determine to what extent learning the language of another culture increases understanding and empathy with the people speaking the other language. Does one actually have to know the language well, or is it possible that time might better be divided between learning something of the language and learning about the people and their customs? The age of greatest ease in picking up correct pronunciation of another language does not coincide with the stage of development when the child is beginning to see the world through the eyes of other people. If language learning is to be used for building better understanding among men, the latter aspect of development must be taken into account.

[12] Theodore Andersson, "Toward World Understanding," *School and Society* 76:274-277 (November, 1952).

The extent to which recordings and other mechanical devices can be used to teach a correct accent in the absence of teachers who speak like natives is a fifth problem requiring investigation.[14]

Are There Other Possibilities?

The need for a more enlightened attitude toward other peoples' languages and for skill in picking up other languages efficiently is immediate and will persist. It will be a long time before all of the elementary schools of America are equipped with teachers competent to teach foreign language. Perhaps we should set more realistic goals—goals that can be reached sooner and with more children.

In sketching a possible program for the elementary school, it is assumed that secondary schools and colleges will continue doing the best job they can to attract and hold a goodly number of young people in foreign-language classes. The elementary school, then, can plan to give attention to the language problem as part of the general education of all children.

It seems advisable that foreign language as such be considered as special education, and be made available to the greatest extent possible. The offering must not be used to create a new elite, but rather should be included among a variety of special activities appealing to different interests and talents of children. The already accumulated experience in methods and materials should be used to improve such programs.

It is here proposed that *a program of comparative language study be set up as a part of general education at the elementary school level.* A few hints for this general part of the program have appeared in preceding reports of practice; others have long been in use in good elementary schools.

One approach to comparative language is the incidental (but not accidental) pointing up of word origins. The children may learn, for instance, that the names of certain foods and other products derive from the language of the country in which they originated. Community studies can lead to investigation of reasons for names of streets and people listed in the telephone directory. Names of cities, rivers, and states in the United States offer another channel for comparing languages. Text and reference books for reading and social studies often contain foreign words, as do some of our finest examples of children's literature. Children who have come to the collecting and classifying stage may enjoy inventing ways of organizing and recording their discoveries about different languages. Such casual approaches put no pressure on children with less language facility and maturity.

Word study in upper grades offers many opportunities to see how Greek, Latin, French, and other languages have helped to build the English language. Direct teaching often is of value at this point, to develop bases for understanding word formation and spelling.

Direct teaching may also help children to learn some common pronunciations of vowels and consonants in other countries. Learning that the letter "i" is pronounced "ee" in many parts of the world may help children to understand the Frenchman, the Spaniard, and the Italian, who transfer this

[14] Soon to be available from the Great Neck, New York, Public Schools is a sixty-page mimeographed report of a survey of elementary school foreign-langue teaching situations as seen on a recent tour of the country by Mrs. Elizabeth Thompson, specialist in elementary education. The report includes criteria for evaluating programs of foreign-language instruction and makes recommendations for three types of communities. This report may be compared with a similar one by a modern language specialist, Theodore Andersson, *The Teaching of Foreign Languages in the Elementary School.* (Boston, D. C. Heath and Co., 1953).

sound to their pronunciation of English. Learning to count in several languages helps to give the feel for pronunciation. Another take-off point might be material comparing sounds made by animals, as expressed in English and other languages. An American-Japanese booklet of this nature is already available.[15] Sharing by children of their knowledge of other languages is another possibility.

A useful study or unit for a group of upper-grade children would be one on languages of the world, their likenesses and differences, and how the world is coping with its complex communication problem. The children might consider such things as why the people in some parts of Canada speak French and why Spanish is spoken in Mexico.

In all of these indirect and direct approaches, whether spaced out or concentrated, the intent should be to develop the idea that each people's language is extremely important to that group. It may be hoped that children's experience with learning even a little about other languages will give them the understanding that others are communicating with the only symbols they know. Perhaps this will make non-English-speaking people seem less strange.

Through approaches such as these it is possible to make the learning of language on a comparative basis an integral part of children's learning in language arts and social studies, a set of activities in which the children can see value and purpose.

It will be noted that all of these approaches make use of the printed word along with aural–oral experience. They are, therefore, appropriate at the stage when children are becoming aware of the delights of communicating with others through symbols, and are thus busy refining their language.

If elementary school teachers are to be prepared to help their pupils gradually develop concepts of comparative language, they themselves must have help along this line.

Whether or not it is feasible to equip each teacher-to-be with facility in one or more foreign languages, knowledge of comparative language would be extremely useful and quite possible to gain in connection with study of English language arts.[16] Teachers in service should be able to learn a great deal along with their children. Short, intensive workshops on comparative language would give them a good start toward being self-educating along this line. The main consideration would be that teachers be resolved to help children develop positive attitudes toward other languages and a basis for faster learning of a language for which need develops. Studies should be made to determine which approaches to language teaching produce results in these two directions.

[15] *American-Japanese Animal Coloring and Talking Book.* Rutland, Vermont, Charles E. Tuttle Co. Of interest also is the *American-Japanese Holiday Coloring Book.* The magazine *Silver Bells,* available from the same source, would acquaint American children with Japanese children's songs, games, and literature.

Highlights for Children, a monthly magazine published at 37 East Long St., Columbus, Ohio, often includes a section on comparative language for young children.

[16] Helpful references for the teacher wishing to study about languages are:

Pei, Mario A., *All About Language* (Philadelphia, J. B. Lippincott, 1954). For ages 12 and up.

Pei, Mario A., *The Story of English* (Philadelphia, J. B. Lippincott, 1952).

Pei, Mario A., *The Story of Language* (Philadelphia, J. B. Lippincott, 1949).

Pei, Mario A., *The World's Chief Languages,* third edition (New York, S. F. Vanni, 1946).

A Common Sense Approach to Music in Education*

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In considering subject-matter areas it is common practice to think of general or basic subjects and special subjects. The discussion which follows will concern itself with an area commonly thought of and usually treated as a special subject. The teachers involved are considered and often labeled "special teachers."

Now what is meant by "special"? In defining the word, Webster says, ". . . distinguished by some unusual quality; uncommon; noteworthy." In musical experience perhaps the most "unusual quality" is that of personal enjoyment and satisfaction, which would be a desirable quality in the learning of *all* subjects. In human existence as we know it, music is certainly not "uncommon." As for "noteworthy," in view of the important role music plays in our Western culture, it would seem that some form of contact with music is worthy of note for all people. On the other hand, if by "special" we refer mainly to a skill that is involved, we must bear in mind that practically all subjects require specialized knowledge and skill. Reading, for example, is a highly specialized skill. From the results of tests given to college students one might get the impression that few people actually acquire a good command of reading skills, in spite of their many years of schooling. If it is the degree of *talent* that brings about this popular use of the word "special," then again we look at *all* subjects and find that innate ability, talent, or what have you has much to do with the degree of achievement.

Consider the possibility that in the development of modern concepts of education we have continued to preserve at least one attitude toward subject-matter areas that is not conducive to the realization of the goals set forth. It is quite possible that music educators and other educators and administrators would be more successful in developing and participating in a program of education that is *truly unified* if we could get away from the idea that some of our subjects are special subjects. Perhaps the special-subject attitude is undermining all efforts to achieve a balanced and unified curriculum.

Unfortunately, music is not always well taught. Also, there are many situations in which only students of above average talent are able to participate. Such circumstances have been responsible for the fence built around the music program and for the label, "special." The proper solution is, rather, the development of a program that is broad and that

* All-College Lecture Series, Summer Session 1954.

operates in the total curriculum setting according to the same philosophy, spirit, and purpose as other offerings.

It must be admitted also that many false claims are made for music. The idea, for example, that music builds character has always puzzled me. Real evidence that this is true has not been produced. It is true that youngsters participating in well-conducted choruses and school and community bands and orchestras are likely to spend more time in wholesome society than those without the same outlet and use of leisure. In boasting of the value of the band-training program sponsored by the Police Department of Denver, the mayor of that city stated that of the three thousand boys who had participated in the program not one of their names could be found on the police record of juvenile delinquents. For practical purposes, then, let us consider those values that we *know* about and their place in current concepts of education and modern society.

MUSIC EDUCATION AND AMERICAN CULTURE

One of the hallmarks of the maturity of any nation is the extent to which it has developed its own philosophies, artistic standards, and cultural patterns, as well as the attention it devotes to these enduring aspects of its civilization. Education has responsibility for (1) providing experiences in the arts in a manner that develops appreciation of them as forms of human expression, (2) providing for an awakening or intensifying of the student's sensitivity to beauty and his desire to create beauty in his everyday surroundings, and (3) providing for the development of bases for discrimination and interpretation. Education fails in its cultural objectives unless it brings to every child the consciousness that his own spirit may find satisfying expression through the arts, of which music is one of the most personal.

Public education is based on the democratic ideal. The chief concern is with the child as an individual in our democratic society. The schools strive at all times to provide a program of education that attends to his social-emotional self as well as his academic achievement. Much stress is placed on the importance of dealing with the child in terms of exploring and developing his individual potentialities. Teachers agree that there must be many opportunities and situations which contribute to the child's basic needs, the most important of which are a sense of belonging, a feeling of security, self-respect, affection, and a feeling of accomplishment. In each of these respects music, properly experienced, contributes much to the total growth of the child. In addition, the music program affords opportunity to unfold creative talent and allows each child the opportunity to gain, *according to his individual capacity*, certain knowledge, techniques, and skills pertaining to music that are appropriate and desirable for successful experiencing of music.

When one considers the nature of modern society, with the intense strain on human relationships in almost every kind of endeavor—seemingly more so now than ever before in history—it is not difficult to understand that music lends itself to a wide range of services in the modern educational scheme. Of the various ways and means of helping young people become aware of those qualities that lead to deeper understanding of human feeling and at the same time encourage an appreciation for those experiences usually termed "aesthetic," participation in musical activities ranks in the

uppermost bracket. Observation of educational programs throughout America shows clearly that the opportunity to respond actively to natural love for tone and rhythm is desired by most boys and girls.

Certainly no endeavor requires a finer sense of teamwork than actual participation in a musical group, whether it be vocal or instrumental. If a performing ensemble serves its true purpose in the educational scheme, not only does each pupil participating react as an individual in a group situation, but the very nature of the experience brings about a keen awareness and interest in what other members of the group are doing. In view of the aforementioned pressures inherent in our contemporary society, youth needs most of all to increase and cultivate those areas of living which permit the individual to express something of his own inner feelings and at the same time contribute to the social life in which he engages.

In any school program that is considered adequate and effective in meeting the needs of youth, music is a vital factor. This is true regardless of the size of the school and community. Whatever else any program of education does, before it can be considered adequate, it must provide for the emotional comfort and stability of self. When music functions properly in an educational setting, whether the individual is engaged in quiet, contemplative listening or the stimulating experience of actually participating in a large band, orchestra or chorus, there is a healthy release of emotions, and, to a degree, energy. In the same vein, any worth-while concept of education recognizes great value in the function of the arts not only because experiences of an aesthetic nature are valuable as ends in themselves, but also because they serve as a means of influencing those qualities of personal living which affect human feeling.

CONCEPTS CONTROLLING MUSIC OFFERINGS

In order to be justifiable in the public school curriculum, all musical offerings must be in accordance with the following concepts:

1. The chief reason for music in the schools is to provide a better rounded and more nearly complete educational experience for *all* children.

2. The ultimate goal of school-music teaching is an appreciation and understanding of how music contributes to human happiness, and the formation of habits of using music for this purpose.

3. The appreciation of music is to be interpreted not as the learning of so many specific compositions or skills, but rather as an emotional attitude or general pattern of conduct which will serve as a guide in evaluating musical experiences within the school as well as those met outside and in later life.

4. The pupil should be provided with a wide variety of musical experiences in which desirable attitudes are given opportunity to function.

5. The effectiveness with which these attitudes function depends upon the facility with which the pupil can use specific habits, skills, and knowledge involved. Memorization of isolated facts and mastery of unrelated skills do not assure desirable modification of behavior. Attitudes are changed by dealing with whole behavior patterns, not by piecemeal additions to them. Interest, enjoyment, and skill should develop simultaneously when music is properly taught.

6. The attitudes developed by a pupil are materially conditioned by the success he experiences in the activities of school

life. As the opportunity presents itself the pupil will continue to do the things out of school in which he succeeded in school, and will evade the things in which he failed. Consequently, musical activities, materials, and instruction should be so varied and flexible that they would provide opportunity for successful participation by children of all abilities, capacities, and in all environmental surroundings.

7. The music program should attempt to be aware of and relate the out-of-school musical influences, such as church, home, radio, television, and movies, to those of the classroom.

SPECIFIC ATTITUDES DEVELOPED THROUGH MUSIC

In the discussion of concepts which control music offerings, mention was made of the development of attitudes. Listed below are some of the most important attitudes that should be developed.

1. *The Attitude of Self-Cultivation,* which includes a desire to increase the variety, number, and depth of one's interests in music and related cultural activities. The determination to be honest with oneself concerning one's own preferences and an understanding of the preferences of others.

2. *The Attitude of Creative Self-Expression,* which includes the satisfaction inherent in expressing one's individuality. The expression of feelings and ideas stimulated by constant interplay between the individual and the social and material aspects of his environment.

3. *The Attitude of Appreciation,* which includes the realization that musical expression is a natural thing in which everyone may take part and which everyone may enjoy, and not an activity set aside for a few gifted people. A sensitivity to beauty of tone, whether produced by the singing voice, the speaking voice, or by instruments. An awareness of rhythm, melody, harmony and an understanding of the necessity for orderliness and balance in a piece of music, the same as in a picture or a building. A feeling for the worth of the composer and his workmanship. A respect for the technical skill of the artist performer and for the precision of the great musical organization. An ability to compare similar moods that are produced outside ourselves by music, poetry, and pictures. The recognition that the life of a people is easily interpreted by its music and art.

4. *The Attitude of Concentration,* which includes the recognition that musical growth, whether in appreciation or performance, requires expenditure of thought and energy. An aroused and sustained enthusiasm which serves as an incentive for work toward the goals of appreciation, skill, and artistry.

5. *The Attitude of Working Harmoniously with Others,* which includes the knowledge that perfection and precision of teamwork are the first requisites to artistic ensemble performance. The willingness to sacrifice one's personal glorification as a soloist for the artistic good of the group.

6. *The Attitude of Recreation,* which includes an understanding that a recreation or leisure activity should be more than a pastime (a pastime is only a change of activity for the sake of variety, whereas recreation should provide change plus growth). That work may become play when an individual expresses himself fully in his activity; that recreation prolongs the period of youth and gives beauty to living.

Space does not permit a detailed discussion of the entire music program from the kindergarten through grade twelve.

A brief reference to the elementary school program might serve as an example of how music can function as an integral part of the curriculum.

We are all acquainted with the old practice (still current in a great many schools) of having the music teachers visit each elementary classroom. Their schedules would let them appear for twenty- to thirty-minute sessions once or twice a week or once or twice a month—or year. A good elementary school program should employ music in ways that will develop the attitudes cited earlier. This entails a flexibility of working, relating, experimenting, cooperating, striving for effect in music that cannot be packaged into twenty-minute periods and delivered once or twice a week. In a proper elementary classroom setting, music is readily available in some form as a stimulating and life-giving influence every day. Classroom teachers, with adequate help and facilities that can be provided by the music person, can make good use of music interspersed throughout the day, as comment, interpretation or enrichment of something that comes up in social studies, reading, or science. The music teacher should be available to share in significant projects of the classroom where musical experiences of one kind or another might greatly enhance and broaden the learning process. As she moves around under these conditions, she will not only help teachers and children with ideas in the use of music as related to their purposes but will make a special point of identifying any special skills that are needed for successful completion of the project and will personally assist in the development of such musical skills. *In this way many of the important skills of music can be acquired readily by pupils mainly because they understand why these techniques are needed and will immediately put them to use.*

While working within the framework of the concepts already outlined, and in providing the kinds of musical experiences from which desirable attitudes will result, an effort should be made to keep a proper balance among the objectives; to keep uppermost the idea that music must be a pleasurable experience; and to bear in mind that the skills are to be developed when needed for purposes of acquiring further experience.

Science and National Security*

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THE current and ominous struggle for power between Soviet Russia and the West is in large part a struggle for scientific supremacy. By scientific supremacy is meant, first and foremost, supremacy in *fundamental* scientific research, and second, supremacy in *basic* engineering research leading to the application of the results of fundamental research to the development of the complex artifacts required in modern warfare. The need for security measures related to this struggle is obvious. There is no disagreement at this point. But there is room for disagreement and responsible questioning in connection with the character and scope of the security system and the manner in which it is administered. It is impossible, I believe, to argue the contrary within the political framework of a free society. To do so would lead one inevitably to rigid "iron-curtain" security measures. This sort of security program could be maintained only by totalitarian methods, and for most Americans, a most rigid program would be indeed required, contrary evidence notwithstanding. The United States is committed, at least in theory, to a reasoned, and reasonable, approach to security measures within a free state; intelligence should be applied to security problems within the democratic framework as well as to the defense effort; we should plan to save our free society as well as our skins. More will be made of these points later but it may be emphasized here that this approach provides grounds for raising and discussing questions about present security measures. But before we turn to the security problem, an attempt should be made to understand something of the nature of the scientific enterprise and its intimate relations with the social order.

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THE SCIENTIFIC ENTERPRISE AND THE SOCIAL ORDER*

Science is a highly prized activity in all industrially advanced countries, and for varied reasons. The tangible fruits of scientific activity are readily perceived by everyone; better health, better transportation facilities, more efficient means of production in the factory and on the farm, more and better gadgets. The indispensability of the scientific enterprise in resisting agression and waging war is further tangible proof that somehow science ought to be supported and encouraged. In another, less tangible sense

* The discussion in this section is based on the studies of sociologists. I am particularly indebted to Professors Robert Merton and Bernard Barber of Columbia University, who are among the relatively few sociologists who have maintained an interest in the relation of science to the social order. (Robert Merton, *Social Theory and Social Structure;* Bernard Barber, *Science and the Social Order.*)

science is prized as a new source of authority, less biased and more objective in its pronouncements. This new authority has enabled man to free himself from superstition and irrationalism, or so it is generally taught in the schools. Somehow statements containing such terms as "science", "scientific proof", "scientific experiment" are more reliable and trustworthy regardless of the purpose for which they are used. In the hands of an advertising agency this widely held if superficially grounded belief in the authority of science is exploited to a maximum. It is a striking example of the flagrant abuse of the authority of science.

This apparent popularity of science, while important, is in a sense superficial. It is insufficient to account for the high status that science enjoys in our society; it is certainly inadequate as a basis for the continuing support of the scientific enterprise. The critics of science have made this point clear. It may be possible to find a more adequate basis for judging the social value of science and thus come closer to an understanding of the security problem as it bears on science, if we examine briefly certain features of the scientific enterprise in their social setting.

The scientific enterprise is basically a social activity carried on by human beings in a social context. Progress is achieved through the efforts of specially trained men and women whose work is made possible and significant by widespread cooperation with other highly trained experts. Cooperation within science has a past and future as well as a present dimension. Scientific advances are cumulative. It was not merely modesty that prompted Newton to remark, "If I have seen further than other men, it is because I have stood on the shoulders of giants."

The scientific enterprise is a social organization, although it has few of the appurtenances which characterize many of our institutions. As is the case with other social organizations, it is characterized by certain moral preferences, many of which are prevalent in the supporting social order. Science is always related to and influenced by the environing society. When advancing, it always influences the social order which supports it. As is to be expected, a rather high degree of autonomy is characteristic of a vigorous science. Attempts on the part of the environing social order to reduce this sphere of autonomy are almost certain to reduce scientific progress, especially in fundamental research. We need only to mention Russian science under Stalin and German science under Hitler to illustrate this point.

The nature of the scientific enterprise cannot be understood without reference to the highly prized moral values which characterize the enterprise as a whole. These values are just as essential to the progress of science as the more dramatic technical operations, which often hide the true nature of the scientific enterprise. To illustrate the nature, scope, and importance of the values characteristic of scientific activity, a few will be mentioned and briefly discussed.

The persistent belief in the virtue of rationality tempered by evidence empirically determined is perhaps the most highly prized value within the scientific community. That this value is not always explicitly recognized by scientific workers only proves the depth of its roots. In fact, the continuous interaction of the rational and empirical is the essence of modern science; it can be traced back in the history of science not much further than the cosmology developed by Newton in the seventeenth century.

The rational-empirical approach to at-

taining reliable knowledge of man and his universe generates related values also highly prized in science. All attempts to establish new facts, principles, or theories are subject to established impersonal criteria; claims made by an individual worker must stand the objective and empirical scrutiny of the worker's scientific peers. Personal or social prejudices, the social status of the scientist whose work may be under review—his race, color, nationality, class, religious preference—are all completely irrelevant. Science is international and universalistic in outlook. To think of a Russian science or an American science as uniquely different from other "sciences" is to suffer a delusion, a potentially dangerous delusion at this period in world history. The biological theories of Lysenko strongly supported by the Soviet hierarchy were rejected by non-Russian scientists and no doubt by many Russian biologists as well. These theories or claims were not rejected because Lysenko was a communist, or because Stalin saw fit to lend political support to them; they were rejected because they could not meet the test set by the impersonal criteria established within the international scientific community.

The results of scientific activity are without exception the products of cooperation and collaboration, historical and contemporary. These products, whether facts, principles, or theories, belong to the scientific community not to the individual worker or workers. They are in the public domain; property rights of individuals are reduced to a minimum. The scientist finds his satisfaction in the recognition and esteem of his peers and an enhanced status in his profession. Within the scientific enterprise common ownership is considered functionally necessary; the opposite, immoral and dysfunctional.

Doubt and scepticism are inherent in the rational-empirical approach to knowledge. The incorporation of scepticism into the scientific enterprise does not lead to inertia, but to the establishment of such values as openmindedness and a willingness to suspend judgment and action until relevant and available evidence has been taken into account. The belief in the value of doubt and scepticism is supported by the knowledge that there exist logical and empirical criteria by which doubt and scepticism may be tested. The cultivation of scepticism within the rational-empirical framework requires the development of a critical attitude, a "critical-mindedness", toward all claims and assertions. This critical attitude is more or less characteristic of all scholarship oriented to empirical problems. It is often misunderstood by the lay public. As the scholar investigates empirical problems in his own or related fields, he may encounter areas held immune to critical analysis. Such "sacred areas" may readily be found in economics, religion, and politics. If the scholar persists in his inquiry, he will more than likely meet the accusation that he is attacking and attempting to destroy traditional values. This may well be the case, but if so, it does not constitute the primary objective of the scholar's work; the primary goal of all empirical scholarship is understanding. In the case of science, understanding means formulating abstract and general propositions, the more abstract and general, the better. This does not mean that facts and experimental laws are unimportant. It simply means that to be of maximum usefulness, facts and experimental laws must be incorporated into conceptual systems which in turn are always subject to empirical evidence. Again, I should like to emphasize that the combination of the rational

and empirical oriented to the task of building more and more inclusive conceptual systems is the essence of modern science.

The fact that scientific activity and its consequences are in the public domain requires that there be a network of communication channels and that these channels be kept open and freely accessible to all scientific workers. Free discussion, free exchange of ideas, and free publication are essential to scientific progress. This is why working scientists almost instinctively resist secrecy and censorship no matter where it breaks out. Only in times of extreme crisis, i.e. war, are scientists willing to compromise this value or ideal. That this presents an extremely important problem to a peacetime security system will be commented on later.

The compatibility of the ideals of science with the ideals of a free society should be noted. The fact that these ideals and values are cultivated more intensely within the scientific enterprise is in the long run less important than that they also exist in some degree in a free society. A free society prizes rationality, although at any given time in our society there may seem to be precious little of the rational operating. Yet there is a general and persistent belief in a free society that the rational will triumph over the irrational in matters of general public concern. A free society values the individual and his conscience. It supports his right to follow the dictates of his conscience rather than the dictates of some organized authority. Freedom of action and conscience are also prized in science. The Christian ideal of brotherhood has a secular meaning common to science and to a free society. No man shall be barred from an occupation who has the talent for the job. Race, creed, color, nationality are all irrelevant to scientific occupation; only professional competence counts.

It should be recognized, however, that these values are occasionally, if not often, compromised in a free society and sometimes, but much less frequently, in science. But the occasional or frequent compromise of ideals in a society is less important than that they persist and influence the continuous social change which characterizes a free society.

SCIENCE, SCIENTISTS, AND SECURITY

In discussing the scientific enterprise in relation to security we should keep in mind the larger context. This context is the total defense effort. To be fully effective, the defense effort must include at least the building up of the military establishment, the maintenance of a high level of economic activity, the extension and improvement of industrial potential, a high standard of living, the maintenance of public morale both in and out of government, the maintenance and enhancement of those values and institutions which uniquely characterize a free society, a steady effort to improve the quality of statesmanship in domestic and international politics, and finally, the maintenance of the scientific enterprise at the highest level possible.

The mere listing of these factors makes clear how complex our defense effort really is and also the interrelation and interdependence of these factors as they bear on the task of preparing our country to resist possible aggression. No sane citizen can view the necessity for carrying on the military phases of the defense effort with any great satisfaction and without some dread. Nor can he, and least of all the scientist, view with satisfaction the necessity to impose on this complex process a security system. It is

certainly a tragedy of our times that so many of the peoples of the world are preoccupied with defense measures and with the problem of security. Even more tragic for us would it be, however, if we allow our preoccupation with the sheer mechanics of defense, and more particularly with security, to obscure our vision so we no longer perceive clearly the democratic values and purposes which the defense effort is intended to preserve and enhance. It is to be fervently hoped that out of their democratic institutions and traditions and the scientific tradition the American people will find the wisdom and the means to maintain and enhance their free society as they carry forward the defense program in all its intricate interrelated aspects.

The scientific enterprise, of which the scientific workers form the most important element, is related directly or indirectly to all phases of the defense effort. That it is most closely related to the military and industrial phases is obvious. To put it bluntly, without the continuous development of the scientific enterprise and its close integration with the military and industrial establishments, both would quickly deteriorate. It is difficult to realize fully how deeply the scientific enterprise has penetrated American life, and the extent to which we are dependent upon it.

It is in connection with the atomic energy program and the Armed Forces, and to a lesser extent with industry, that science and security meet head-on. This is regrettable, but it most certainly need not be disastrous for science, or the scientists, or for the other phases of the defense effort enumerated above. It can be laid down without argument, however, that science and scientists are peculiarly vulnerable to security measures; that is, to proscriptions, circumscriptions, and restrictions more or less arbitrarily imposed from outside the scientific enterprise, or within for that matter, as witness the unhappy experiences of the nuclear physicists with their attempt to limit and restrict publication of their findings just previous to World War II. Freedom for the scientist to discuss, to pass on to others new ideas and to receive from them their latest findings, is the lifeblood of science. Further, no working scientist can disregard what is already known and he has a moral obligation to disclose to his peers what he discovers in his own studies. This institutional mandate, as the sociologist terms it, is binding on all working scientists. It facilitates maximum use of established knowledge and speeds the public testing of new truth claims or extensions and modifications of old. It is this inherently public nature of the scientific enterprise which makes it vulnerable to any attempt to restrict the free flow of information.

Yet in time of crises such as exist today, a security program and particularly security measures involving the control of information are necessary in order to increase the probability that our free society will continue to exist and function as a positive force in building a better world. This seems to me to be the major social justification for a security program, especially in peacetime. Therefore, it is necessary that we examine the kinds of measures that have been taken in the United States to control the flow of scientific and technical information, and then to see how such measures and their administration bear on the scientist and the scientific enterprise.

First of all we should note that security measures are a normal and integral part of the general policy in the Armed Forces and, to a much less degree, in many governmental agencies. What is novel in the

present situation is the prolongation into peacetime of security measures similar to those in force during the recent war. We should note that the security programs in operation today in the United States cover a substantial portion of the adult population. All members of the Armed Forces and all civilian employees of the Federal Government, all university students, faculty members and researchers who are studying or doing research with help of Federal grants, all employees, and executives of plants working on or with classified materials and projects, all scientists working on government projects for private establishments, and all citizens who apply for a passport must be cleared by a Federal security check of some sort. But since our interest is in science we shall limit the field to scientists who are civilian employees of the Federal Government doing research and technical work carried on in connection with nuclear projects.

The present legal basis for the security program as it relates to the atomic program stems from the legislation embodied in the Atomic Energy Act of 1946, which created the Atomic Energy Commission and charged that Commission with full responsibility and control of the whole atomic enterprise. The practical effect of this Act was to create what James R. Newman has termed, "an island of socialism in a sea of private enterprise." The control of the flow of information related to the atomic enterprise, both military and non-military, and the control of those who discover and use this information came under the jurisdiction of the Commission. It should be noted here that the atomic project was under rather rigorous military control during the war period, and the military is still an important factor in the present AEC security program. Further, the Atomic Energy Act of 1946 has been modified in several important respects by the Atomic Energy Act of 1954. For example, changes in the law relating to security permit the AEC to adjust requirements for security to the type of work done and to the importance of the restricted data, and provides a sanction in the form of a $2500 fine for any employee who is working or has worked on an atomic project, or any member of the Armed Forces, who discloses restricted data to unauthorized persons. It is not necessary to prove intent to compromise the security of the United States or to aid a foreign power.

The task of the AEC as it relates to the control of atomic information boils down to the complicated job of determining the scope and timing for secrecy or censorship in the whole field of nuclear studies and nuclear developments. This involves the difficult task of developing criteria for evaluating and re-evaluating existing atomic data. This is what is meant essentially by "classification" and "declassification" of atomic information. Classified data are not all of the same degree of secrecy; data may be classified as top secret, secret, confidential, or restricted.

It is one thing to determine what is to be kept secret, but quite another to maintain the requisite secrecy. Here the AEC is faced with one of its toughest and most delicate tasks. To maintain secrecy requires that some control be exercised over those persons who discovered or are discovering the "secrets", or who must have access to the classified data in order to carry on their work. This requires that procedures be established whereby it will be possible to determine who is a security risk and who is not. This means that every employee working on atomic projects must be investigated in order to determine his security status, a formidable task not to be undertaken lightly in

the name of safeguarding a free society even in a time of world crisis.

The major objective of a security program, then, is to prevent the leakage of information concerning scientific-military developments which *are* secrets and which it is to our advantage to keep secret at any particular time. At the same time, the security measures employed to achieve this objective must do minimum violence to the scientific enterprise and to the scientific workers in terms of their rights and responsibilities as scientists and as citizens. To attempt less would endanger the goose that lays the golden secrets, to poorly paraphrase a respected proverb. Yet there are visible and compelling signs welling up, not only from within the scientific enterprise but elsewhere, that clearly seem to point to a need to reconsider critically the security program, especially in relation to the scientific enterprise.

CHANGES IN THE SECURITY SYSTEM NEEDED

A few additional comments are needed before we consider the problem of improving the present security system. The ways by which a people or a culture relates itself to the natural environment, particularly the manner in which it exploits its natural resources, is its technology. Science informs technology, provides the theory needed to rationalize the technological enterprise. Without science, technology would soon stagnate, return, so to speak, to the craft tradition from which it sprang. On the other hand, without progress in technology, fundamental science, astronomy, for example, would be severely handicapped.

Science and technology extend a culture's understanding of itself and its natural environment. Science as a body of systematic thought competes with other established methods of thought. This is inevitable and not to be regretted, although conflicts may arise, and often do, between different systems of thought when they cross one another in the same problem area. (We are reminded at this point of the famous debate in the year following the publication of Darwin's *Origin of the Species* between Thomas Huxley and Bishop Wilberforce over the question of the origin of man.) Scientists guard their common methodology with zeal. As Professor Sidney Hook has remarked on occasion, you may tamper with anything in science except its methodological core. The business of science is not to reach certainty, absolute truth. This *ignis fatuus* was abandoned long ago. The scientist working on the frontiers hopes to achieve a closer approximation to truth, to improve the predictive power of scientific statements.

As already mentioned, science and scientists are in some ways unusually vulnerable in the face of security regulations. The passport situation offers a ready illustration. Since the passage of the two McCarran Acts—The Internal Security Act of 1950 and the Immigration and Nationality Act of 1952—many American scientists have experienced difficulty in obtaining passports to attend meetings, or to study, or to teach abroad. Similarly, many foreign scientists have experienced great difficulty in obtaining visas to enter the United States. For example, Professor Linus Pauling, internationally famous chemist, applied for a passport early in January 1952 to travel in Europe and to attend a meeting of the Royal Society in London.* His request was turned down solely on the grounds that it was not in the best interests of

* The two passport incidents cited here were reported fully in the October 1952 issue of the "Bulletin of the Atomic Scientists."

the United States to issue a passport to him at the time. Subsequently, Professor Pauling did obtain a passport but very much too late to attend the Royal Society meetings.

Early in 1949, just previous to the passage of the Internal Security Act, Professor Lawrence Schwartz, one of the world's most eminent mathematicians, applied to the American Consulate in Strasbourg for a visa to enter the United States in order to attend meetings and to work at the Institute for Advanced Study at Princeton. The visa was refused on grounds of technical difficulties. Subsequent follow-up by Professor Schwartz got nowhere and his visit to the United States was abandoned. Professor Schwartz tells an interesting incident which took place during one of his visits to the Consul. After Professor Schwartz had declared vehemently that his trip to the United States had no political significance, the Consul replied, "But even if you don't take part in any political activities, you might make propaganda on behalf of the Negroes and we do not want any of that sort of thing." It seems hardly necessary to comment further for it is clear that ill-advised, basically irrational passport policies could very seriously interfere with the movement of scientists and with the free exchange of ideas so essential to scientific development. It should be noted that the step from restricting the movements of scientists to blocking interchange of published scientific materials is not great. That minds can meet on common nonpolitical ground across political barriers is apparently difficult for the politician or bureaucrat to understand.

The general domestic security situation should also be noted. During the early postwar period, before 1947, there did exist security measures in a few sensitive areas. In 1947, President Truman initiated by Executive Order a government-wide program to measure loyalty, and thus brought into being the beginnings of a security program which, with a change of administration and another Executive Order, blossomed into the present program. This last Executive Order set new standards of loyalty and authorized all government agencies to "clean house" of all those employees whose further employment would endanger national security. Policies and procedures are now largely left to the individual agencies, including, for all practical purposes, the important safeguard of hearings. The finality of each agency's decision as to who is and is not a security risk is established. There is little in the Executive Order itself that could be used to establish clearly defined policies, procedures, and precedents. Each security case has to stand more or less on its own, isolated from all others. But in spite of the general confusion with respect to security measures, or perhaps because of it, governmental agencies have furnished the Vice President with a useful statistic: more than 7000 Federal "security-risk" employees separated from government payrolls.

There are signs of unrest, uneasiness, distrust, uncertainity, and down-right scepticism among scientists with respect to the security program, especially the scientists working on various AEC projects. Dr. Vannevar Bush has on more than one occasion publicly expressed his concern over the adverse effects of present security measures on scientific research, especially the research connected with the defense effort. Dr. John Von Neuman, newly appointed member of the AEC, has pointed out that the present security program is administered without the proper safeguards that would ordi-

narily characterize judicial procedures. And the decisions made with reference to the security clearance of Dr. J. Robert Oppenheimer by the AEC and the specially appointed Grey Board has tended to increase the uneasiness of scientists, and very many others, especially those scientists on the government payroll. We might profitably turn our attention briefly to the Oppenheimer case, for it does reveal some of the weaknesses and irrationality of present security measures.

Dr. J. Robert Oppenheimer is one of the world's greatest and best-known theoretical physicists. Since 1942 he has been in government positions of the highest importance in connection with the atomic energy program. Dr. Oppenheimer's past has been extensively and intensively investigated. He was cleared as a security risk during the war period and by the AEC in 1947. In the fall of 1953 the FBI was alerted, and another summary file on Dr. Oppenheimer was prepared and sent to appropriate persons. Dr. Oppenheimer's clearance was suspended and a file of restricted data removed from his study at Princeton. The AEC submitted formal charges to Dr. Oppenheimer, and he was given opportunity to appeal to a special board of inquiry which was set up under the chairmanship of Gordon Grey. The Grey Board on a 2-1 vote, the scientist member dissenting, recommended that clearance for Dr. Oppenheimer not be restored. The AEC then reviewed the case including the Grey Board report, and also arrived at the same conclusion by a 4-1 vote, the scientist member again dissenting, but on different grounds. Both reports on the Oppenheimer decision, widely available, should be read and studied by every literate American citizen.

The first point to be noted is the diversity of grounds on which the negative decision was based. After many comments on Dr. Oppenheimer's laudable record as a public servant—"loyal", "discreet", "a man who loves his country"—the Grey Board voted to deny clearance citing as grounds for the decision Dr. Oppenheimer's disregard for the requirement of the security system, susceptibility to influence, lack of candidness in giving testimony, and his conduct in the hydrogen bomb program. The last item warrents close inspection, for the major criticism of Oppenheimer's conduct was his lack of enthusiasm for the H-bomb project before it was decided to go ahead with it. In short, the Grey Board advanced an astonishing criterion for security: degree of enthusiasm.

The AEC rejected the "degree of enthusiasm" criterion and grounded its majority report on "defects in character" and "past associations." One of the concurring members grounded his decision on "disloyalty", defining loyalty as "exact fidelity to security regulations." And finally the two scientists, one in each group, wrote dissenting opinions which directly or by implication rejected the bases on which the majority decisions were reached. It should be kept in mind that the men involved in judging the Oppenheimer case are all able, experienced people, and further, their decisions were reached after examining precisely the same testimony, the same files, the same evidence.

The diversity of reasons advanced by the Grey Review Board and the AEC to support the denial of security clearance to Dr. Oppenheimer, and the contradictory statements, especially in the Grey Report, suggest that a basic weakness in the present security system is its lawlessness: an island of "government by men" in a sea of government by law. This

"lawlessness" is not saved by the suggestion in the Grey Report of a "jurisprudence of security", for jurisprudence means the science or philosophy of law, a system of laws, which is just what is lacking in the security system. As one commentator put it, a more appropriate term could be "the jurisprudence of lawlessness." It is quite possible, and far too probable to be comfortable, for a head of a government agency to prepare written charges against an employee (required by Executive Order), hear the reply to the charges, and then make a decision to fire the employee as a security risk, thus performing the functions of prosecutor, jury, and judge.

Perhaps enough has been said to raise a suspicion that the security program needs considerable attention by men of sound mind and good will. Further, it should be clear that the welfare of the scientific enterprise and the welfare of a free society have suffered and will continue to suffer unless a saner security system is devised and put into operation.

While it is impossible to outline an adequate security program, some suggestions may be made regarding certain features of such a program.

1. Fundamental scientific research must be prosecuted at a high level even in wartime. All technologic development depends on specialized scientific knowledge, the product of basic scientific research. Without this knowledge, scientific supremacy cannot be achieved. As has been clearly demonstrated in recent experience, the application of security measures to fundamental scientific research only retards it and adds little if anything to security. Science is international. The results of basic research are known in every country, and when the curtain of secrecy descends, we may be sure that those outside the curtain know perfectly well what the next steps are. Therefore, security measures, secrecy, and censorship should not, indeed must not, be applied to fundamental scientific research.

2. Outside the area of fundamental scientific research, classification of data must go on until the present situation is resolved. But it is imperative that censorship be applied only at critical points from the beginning of the basic technical research until the device or process is available for use. Secrets do not have life eternal and therefore information should not be kept any longer on the classified list than is absolutely necessary. This is not easy, and mistakes will occasionally be made. But a calculated risk must be taken, for scientific supremacy cannot be achieved and maintained simply by erecting a paper curtain between scientists and the rest of the world. To believe that it can is a dangerous delusion.

3. Restrictions on the movements of scientific workers, domestic and foreign, should for the most part be abandoned. There is little if anything to be gained by this process.

4. Finally, as the situation now stands, the security system is almost an island of anarchy within our free society. It must be brought under law and the courts, even if special courts have to be organized. That this is not impossible should be clear to everyone. We know perfectly well how to design a security system far more effective that we now have and far more conducive to a free society.

A free society requires a reasoned and planned approach to the security problem; it is absolutely essential to scientific progress. The genius of America is fully adequate to meet the challenge; the basic motivation exists although it is apparently dormant at the moment. The present confusion with respect to the security sys-

tem is largely the work of evil and mistaken men and those who have been intimidated by them. That this confused security situation is dangerous for the welfare of the scientific enterprise we have tried to show. The welfare of the scientific enterprise in a free society is as much the responsibility of each and every citizen as it is the responsibility of government or the scientific workers. When the scientist and scientific "secrets" assume political importance, when the defense effort becomes so interlocked with scientific and technological development as to be almost indistinguishable, when a like relation exists between economic development and science, and when economic development becomes essential to defense planning and preparation, what responsible citizen can then say that the problem of science and national security is no business of his?

If They Know Not, Teach

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As early as 1920, teachers in higher education began to search for methods to improve the quality of teaching at the undergraduate, graduate, and professional levels. As they viewed the thought and effort that were being put into the improvement of teaching at the elementary and secondary levels, they felt that corresponding concern ought to be exhibited on the higher levels. Today, almost a teaching generation later, the need still exists. During the last thirty years, a considerable amount of effort has been expended in attempts to evaluate the various methods of teaching in order to find a "best", or at least a better, method. Much reliance was placed on experimental studies of contrasting methods such as, "Is the lecture method better than individualized conferences?" or, "Is the discussion method superior to recitation?" Indeed, as investigated in researches, concepts of method seemed to be delimited to a concern for just the very broad techniques—lecture, lecture in print, laboratory, case study, individual instruction or conferences, honors seminar, discussion and recitation. Within the last ten years, the concept of methods has been extended to include innovations from group dynamics, such as small group and student-centered instruction.

Between 1920 and 1930, evaluations were primarily concerned with the lecture method as compared to discussion or individualized reading. Between 1930 and 1940, the lecture method was appraised more often in contrast with the question-and-answer, or Socratic, approach, or with recitation sections. Only between 1940 and 1950 did the stress shift to the group-oriented teaching techniques.

It would be happy indeed if there were a clear answer on the relative value of the different methods studied. Unfortunately, this is not so. The experimental literature allows every teacher to find support for any method. Experimentally, the lecture method has been demonstrated to be the best, the average, and the worst of methods. Similar generalizations can be made for the discussion method and the recitation method. There has been no uniform definition of what zealous experimenters have named the lecture method or the discussion method. Furthermore, no standardized procedures were used for evaluating the differences between methods. Sometimes evaluation was made in terms of student judgment; more often, of course, it was made in terms of objective examinations, either immediately after the lesson, and/or at final examinations. The nature of the examination—with its possible range from highly specific questions of detail to broader questions that attempt to appraise a person's ability to organize material, or to solve novel problems—makes comparisons between methods quite hazardous. It is not at all surprising, therefore, that de-

spite the fact that more than one hundred studies have been made of contrasting methods, the adequacy of any method is still indeterminate.

In the search for new ways to challenge college and graduate students, the emphasis recently has been on student-centered teaching. As was true for other methods, it is difficult indeed to reach a definition of student-centered teaching method. For instance, McKeachie[1] believes that the best way to define it is to contrast it with instructor-centered method. He believes that the primary difference between the two contrasted methods is that in student-centered teaching the student sets the goals in terms of affective, rather than intellectual, objectives. It is assumed usually that in instructor-centered teaching the instructor establishes goals which very frequently are characterized in terms of knowledge for its own sake.

In the student-centered method, however, inter-student verbal participation is considered a means for achieving growth by all students. The instructor is considered one who accepts all contributions from the students, even when they are in error, without evaluation; who encourages discussion of personal problems with the aim of helping students to attain self-insight. These emotional and group consequences are assumed to be a by-product of the greater group cohesiveness resulting from student-centered method.

Whenever a sharp dichotomy is made, as between student-centered and instructor-centered methods, there is a tendency to attribute all good outcomes to the one, and all poor outcomes to the other. Perhaps in any innovation such advocacy is necessary to raise hypotheses for subsequent evaluations. The literature on teaching savors of polemics rather than of reasoning, and partisans attribute the good outcomes to the specialized behavior of the instructor in the student-centered methods. For instance, Shields[2] believes that the instructor's role is not to answer student's questions, but rather if and when questions are asked, to rephrase them and turn them back to the student, or to turn the question directly to the class for analysis or clarification. Cantor[3], who has been responsible for much of the emphasis on the student-centered approach, feels that the instructor at times should take a leading role when the class seems bored or uninterested. His leadership, then, would consist of providing obstacles with which the class must contend. There are yet others who think of the instructor in student-centered methods as a moderator who functions to encourage and to temper class deliberations. Some feel that the instructor never should allow students to develop any dependence upon him. Indeed, they believe that it is the instructor's duty to see that the responsibility for learning remains entirely in the hands of the students. Good teaching, even if instructor-centered, does not necessarily involve the giving of complete answers or standardized solutions. Good teaching means guiding by hint, cue, clue, and suggestion to the mastery of ways of extending knowledge and of solving problems.

Student-centered methods, if effectively put into practice, must lead to the promotion of social, or group, values; to the development of personality; and even,

[1] W. J. McKeachie; "Student-Centered vs. Instructor-Centered Instruction," *Journal of Educational Psychology*, 45:143-150 (March 1954).

[2] Allan E. Shields, "Socrates Was Not a Rogerian," *Journal of Higher Education*, 24:478-81 (December 1953).

[3] N. Cantor, *Dynamics of Learning* (Buffalo, Foster and Steward, 1946).

in ways, to therapy. Such affective results, too, need not be at the expense of the older objectives, such as the acquisition of content and the development of intellectual skills, although in higher education that is often the case. The attainment of affective goals may be at the cost of those skills and learnings usually attributed to instructor-centered objectives.

Whenever an instructional area has a body of facts, skills, generalizations, attitudes, and values that the young student needs to know, it may be necessary for the instructor to help the class to learn about them. Perhaps it is an error to assume that physics, or chemistry, or psychology, or education has a body of knowledge, methods, hypotheses, theory and convictions; perhaps it is an error to assume that any of these areas has a long history from Aristotle to Einstein; perhaps it is an error to assume that the many texts in any subject field are not entirely fantasies of their authors. Perhaps it is an error to assume that every college teacher needs to have read the relevant literature, or to have experienced the full range of procedures for arriving at new knowledge, or to have envisaged the gamut of interpretations and attitudes in his field; perhaps it is an error to assume that no student could know all the facts, skills, and generalizations in any subject area; perhaps it is an error to assume that no student could have had experiences rich enough to illuminate the whole body of knowledge in each field. Of course, I do not believe that I am in error.

If instructor-centered teaching means that the instructor selects from the range in his field the appropriate goals, facts, skills, processes, attitudes, and values to be taught; and further, if he arranges, organizes, and plans the instruction so that the student makes these goals his own, so that he learns the facts, acquires the skills, uses the appropriate processes, develops significant procedures, and internalizes the values that will lead to a successful use of what is taught, then instructor-centered method is necessary. It is indeed difficult to conceive how students, as students, could specify in advance the facts and skills and values that go with the mastery of any undergraduate field. Perhaps some students do know the field. If so, then it is regrettable that there are colleges and graduate schools that require students to re-expose themselves to materials already mastered. But if a student comes to a college course to learn, it may be reasonable to assume that he is saying, "I know not, teach me." And the student should assume that the teacher has something to profess.

Instructor-centered method must mean that the teacher does structure the material, plan the nature of the experiences, suggest the means for the learner's acquisitions. But instructor-centered method does not mean that the teacher just lectures, or just assigns the next twenty pages, or just listens to memorized reproductions of assigned readings. It does mean that the teacher provides a plan, arranges the topic sequence, tries to minimize the learner's errors and their consequent frustration, and attempts to give the learner security in the mastery of the subject area. Within such a plan, he provides for different methods that he thinks will lead to the attainment of goals. He thus may provide for student participation in discussion, for small group cooperative deliberation, for designated exercises and experiences, and for opportunities to utilize the new acquisitions in personally and socially significant ways.

Even where the student-centered method is used, it is the instructor who decides that he will allow the student to

become the center of the activities in the classroom. At best, the instructor chooses techniques by which the student can realize goals he thinks necessary and attainable. Student-centered method has its place in some classes: interacting with fellow students is a necessary part of the process of higher education. But no method in and of itself should be used to the exclusion of other means of communicating with those who come to learn.

It is quite likely that the experimental studies attempting to assay the relative effects of student-centered method vs. instructor-centered method must inevitably come to conclusions as ambiguous as those of earlier studies—not only is student-centered method ill defined, but any method's results depends upon the instructor who uses it. In some areas of knowledge and with some kinds of students, one method may lead to significantly better results than another. If, however, that method becomes the exclusive method in any institution, it will probably become as dull as some people believe traditional methods have become. The success of a method is partly a consequence of differences between it and other methods. For example, some students may welcome a straightforward lecture after having been exposed to nothing but group discussion for a year.

Different methods arise partly from the need to organize materials for presentation and partly from the need to stimulate students to learn. The chief characteristic of any method should be that it is used first to motivate or encourage the student to learn. Motivation, of course, can be implanted by many methods, all of which agree in trying to make the student realize that the objectives of instruction are attainable and that the process of getting at them is challenging. The more the instruction is related to reality and to genuine situations, the more appealing the material is likely to be; the greater the motivation, the more likely that the individual will become active in the process of getting the information, skills, and interrelations necessary for complete mastery of any area.

No method, as method, is unique in motivating the student to self-activity or to social interaction. Indeed, it is not the lecture method, but how the lecture method is used; it is not the student-centered method, but how it is used. No instructor on the college or graduate level can afford to assume either that any one method will accomplish all objectives, or that any method can fail to consider the known aspects of the psychology of learning. The school setting makes teaching and learning artificial. The teacher, therefore, must use the methods that he feels, on the basis of knowledge and experience, will lead to successful accomplishment of curricular goals. The teacher must consider the objectives of society, the content of the subject, the nature of the learner, and the methods of teaching.

In the presentation of material, there is need for structuring. This may involve the setting of problems which can be solved by the previous experiences of the learner; it may involve the organization of content by emphasizing essentials, by introducing summaries, and by developing concepts necessary for mastery. The teacher must provide for adequate review and for genuine applications. No teacher can assume that all learners come with the same attitudes, the same task orientations, or with the same purposes.

Hence, variation in methods is most likely to attain all the goals for more of the students. No method is really superior to any other: Variety in method is the spice of teaching, as well as of life.

—REVIEWS

Realms of Value, A Critique of Human Civilization, by Ralph Barton Perry. Cambridge, Harvard University Press, 1954. xii + 497 pp. $7.50

We live in a time when increased attention is being given to the subject of values. This deepening interest in values is not confined to groups in religion, philosophy, and education who have a professional concern with the problem. The subject of values in one form or another is often given a central place in the deliberations and the reports of business, labor, agriculture, medical, and law groups, who are reputed to have a hard-headed devotion to the realm of the practical. Further evidence of this aroused popular interest in values is found in the increased space which the secular periodicals and the daily newspapers are giving to articles which deal with the subject.

This growing interest in values has its cultural roots. Science and technology have resulted in a world in which many of the inherited axioms and norms of human conduct no longer verify when put to the test of everyday experience. As a result of the division of productive processes and the consequent specialization of life functions, we live in a world marked by a vast interdependence. In this complex and interdependent industrial society, many are no longer convinced that the unregulated exchange of goods and services is necessarily guided by a "benevolent, unseen hand" which, operating through the law of supply and demand, automatically gives each person his just share. In other words, they are beginning to doubt the validity of the dictum that self-love and social are the same." Farmers, workers, and members of white-collar and professional groups are beginning to wonder whether the alleged evils of planning and of coordination by the "bureaucratic welfare state" are not to be preferred to the ruthless plunder of natural resources the free-enterprisers are undertaking, now that they once again occupy the chief posts of government. Many are beginning to realize that the maintenance of human security, freedom, and equal educational opportunity require that altered conceptions of human welfare be developed to take the place of those that have become obsolete as a result of changes in the basic conditions of life. These reconstructed patterns of human welfare necessarily involve new schedules of individual rights and responsibilities as well as new standards of right and wrong. All of which is to say that we are becoming more conscious of the values embedded in our operating ways of living, because we are confronted with the task of reviewing and revising principles of action to which we have long been habituated.

Nor is the problem of the reconstruction of values restricted to the economic aspect of our experience. It is equally urgent in the sphere of interracial relations, as we are discovering as we seek to remodel our system of public schools to bring it into harmony with the recent Supreme Court decision that "in the field of public education the doctrine of separate but equal has no place; separate educational facilities are inherently unequal."

Still more fateful is the conflict of values in the international sphere. We live in an interdependent world which has destroyed the security so long provided our country by the two broad oceans. Today, security can be real only as it is global in nature

and institutionalized in world agencies of cooperation and authority. But in our divided world, as experience in the United Nations has shown, security through world organization and cooperation defines an urgent human need, not a developed human capacity. The deliberations in the United Nations also show that the existing cleavage is not merely one of conflicting economic and governmental systems; it is also one that involves alternative interpretations of human freedom, of the nature of the good society, and of morality.

All of the factors that push the problem of values to the forefront of our consciousness apply with intensified force to the work of the educator. In order to be equipped to educate we must have definite ideas of the kind of human beings we seek to develop, and as Professor Perry points out in *Realms of Value*, "the moral purpose of education is obscured by the tendency to fall back on the vague notion of the development of the individual's latent possibilities. For it is evident that there is no educational process which does not develop the individual's latent possibilities—for better or worse. The standard of development is no standard at all unless some idea of *what is to be developed* is introduced or read between the lines."

Professor Perry is also in accord with the view of Dewey that this standard of development should not be concealed or smuggled in by some unrecognized procedure, for he believes that we shall do better if "we know what we are about when we are about the education of the young." He is also convinced that if we are to know with any definiteness the kind of person we are seeking to nurture in the schools, we must know a good deal about the civilization in which he is to live. For it is through education men acquire the civilization of the past, and are enabled both to take part in the civilization of the present and to make the civilization of the future."

Nor does this emphasis on the *what* and the *subject matter* of education make Professor Perry indifferent to the *how* and the *method* of education. He knows too much about the kind of creature a human being is, and too much about the nature of values and the way in which they are acquired and woven into the warp and woof of human personality, to accept the notion that education is an undertaking in which children, viewed as empty containers, are filled by a simple process of pouring into them the goods or knowledge or values which adults cherish and select. He says:

> External influences obtain access to the mind only when the mind opens its doors from the inside, even if it be only by the act of attention. This is the truth proclaimed by so-called "progressive" education, and which has been perpetually proclaimed by the educational reformers of all ages. Men learn by exercising themselves, by following their interests, by trying to succeed; and if education is to educate it must release the springs of such activities.

All of the foregoing excerpts have been taken from Professor Perry's chapter on "Education and the Science of Education." It is a splendid discussion and contains much that every teacher and educational administrator will read with real profit. But I would do educators and this book a disservice were I to convey the impression that this chapter is the only part of the book relevant to the problems of education. Quite the contrary, for I consider the book as a whole of primary importance for all who are charged at this time with the responsibility of the education of the young.

Professor Perry is convinced that we are on the threshold of a new era in human affairs. He believes that "there is unquestionably an historical trend toward interdependence, so that men and societies are now interdependent even for their independence. Conflict is no longer to be escaped through isolation and non-interaction. Mankind has been somewhat slow to recognize this fact, but it is now so inescapable that political isolationism, economic laissez-faire, and the cultural 'ivory tower' do not need to be refuted: they are obsolete. . . . The change is so conspicuous and so revolutionary as to mark the beginning of a new epoch."

It is from the perspective of this revolutionary development that Professor Perry makes his audit of human civilization. He views institutions from the standpoint of the human ends they serve, and he judges them by the consequences they produce in the lives of those who live under them. He contends that "morality takes conflict of interest as its point of departure and harmony of interests as its ideal goal." He thus finds an "identity between democracy and morality," for a democratic society is one that seeks the most inclusive organization of interests, and "the procedure by which this is effected is the method of reflective agreement."

His ethical analyses are grounded in a mature anthropological, political, legal, aesthetic, religious, and philosophical understanding. He uses this knowledge to disclose the human significance—the significance for values and morals—of our major forms of social life. By analyzing civilization from the standpoint of its bearing on values, he has provided indispensable material for educators, and he has provided it in a manner that makes it readily available for their purposes. This book should be widely read by teachers, for it will do much to provide educational orientation in this period of social turmoil and cultural mutation.

JOHN L. CHILDS
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The Nature of the Self, by Risiere Frondizi. New Haven, Conn., Yale University Press, 1953. xi + 210 p.

It has been said that in the history of Western thought the dominant orientation of the ancients was toward nature, that of the medievals toward God, and that of the moderns toward man. Yet paradoxically it is in the age of man that man has become most insecure and confused about his own selfhood. Such diverse contemporary movements as psychoanalysis and existentialism are both symptoms and proffered remedies in this "crisis of the self." Frondizi's book, as a critical and constructive analysis of the nature of the self from the standpoint of empirical philosophy, is a competent and timely contribution to this fundamental problem.

The villain of the piece is Descartes, who originated the conception of the mind as a substance, and thereby set the stage for the subsquent conflict of a "substantial" view of self as opposed to an "atomistic" one—a conflict which has continued down to the present day. In the first half of this book the author traces the development of the idea of self from the substantialism of Descartes, through the successive criticisms of Locke and Berkeley, to the atomism of Hume. This historical analysis is accurately and perceptively done without losing the main thread of argument in secondary details.

In the second half of the book Frondizi presents the thesis that we are not forced to choose between the denial of self, as in the atomists, and the positing of self as an unchanging spiritual substance. Instead he argues that "the category of substance must be supplanted by that of *function* if we wish to interpret adequately the nature of the self." The functional concept defines the self as "a coordinated structure of activities," of processes and relationships. Such a functional view solves the problem of continuity and of personal identity without denying the fact of constant change. In fact "change is what gives the self stability and permanence." To show how this is possible the author draws upon the results of Gestalt psychology, which indicate that conscious experience is not a simple registering of isolated sensations, but is an organization or structure in which the multiplicity and diversity of elements are welded into a concrete unity.

The concept of dynamic structure is important in a modern philosphy of the self, but it seems that Frondizi remains under the spell of Descartes. Where Descartes went wrong was in setting up mind and body as independent substances. His error

(in part shared by Frondizi) was what Whitehead called "the fallacy of misplaced concreteness." The concrete entity in the case of man is the total human organism, of which mind and body are aspects. According to Frondizi, self refers to the concrete dynamic unity of the psychic life. Actually the psychic life is not the concrete entity, but is simply one aspect of the being of the whole organism. Also, to speak of "function" does not really get rid of substance, for the question arises, Function of *what?* The psychic life is a way of functioning *of the total organism.* The whole organism thus assumes the role of substance. An adequate functional conception of self requires more than Gestalt psychology; it needs a philosophy of organism. The best way to start is to go back to conceptions which prevailed before Descartes made his dualistic blunder. In fact, for the functional interpretation of self one good starting point is still the philosophy of Aristotle.

PHILIP H. PHENIX
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Staff Personnel in the Public Schools, by Willard S. Elsbree and E. Edmund Reutter, Jr. New York, Prentice-Hall, Inc., 1954. ix + 438 pp. $4.65.

The purpose and character of this volume are indicated in a passage in the preface: "The wisdom and knowledge of school administrators and supervisors are key factors in releasing the potential of teachers. If the former are capable of recognizing and selecting promising talent, if they know what constitutes suitable working conditions and can provide them, and if they can establish the climate essential for a strong morale, they will have demonstrated superlative leadership."

The authors lay stress continuously on the importance of respecting the feelings and sensibilities of teachers. For instance, in regard to the assignment of teachers to committee work and other special duties they indicate that when teachers assume time-consuming tasks they should have their regular load reduced. In meetings of the staff to consider curriculum and other matters they recommend that the administrator or supervisor should have no preferred status. They give a warning which many administrators and supervisors should heed—that it is impossible for the average administrator or supervisor to realize the tension under which many teachers labor when he visits their rooms.

The authors compare the probationary period which the teacher goes through to the internship of the doctor. They discuss in detail how the probationary teacher may be oriented to the system and his work, and how he may be aided, counseled, and evaluated. After his probationary period has been successfully completed he is accepted as a full-fledged member of a professional staff. In regard to the regular professional staff the authors say, "The supervisory process is indirect so far as influencing the experienced members of the staff is concerned, and it involves working with groups more than with individuals."

If there are any who think the emphasis in this volume on the importance of regarding the sensibilities of teachers is greater than necessary, they should consider the fact that some large corporations have found that usually men drawn from their sales departments make better plant superintendents than men who have come up through production.

The various areas in the field of staff personnel management are discussed in satisfactory detail and with judicial fairness where controversy is involved. The chapter headings are Recruitment; Certification; Selection; Assignment, Load, and Transfer; Orientation, Salaries and Salary Scheduling; Leaves of Absence; Tenure; In-Service Education; Personnel Records; Morale; Academic Freedom; Retirement; Professional Associations; Professional Ethics; and Legal Status of Staff Personnel.

In the discussion of certification this statement is made: "There is a feeling among some segments of the public and of the

academic world that too much emphasis is being placed in certification requirements on training in method at the expense of content. . . . A man with a Doctor's degree from an outstanding university in an academic field, even if he has completed some education courses with distinction, cannot qualify for any certificate in most states if he lacks one or two 'prescribed' kinds of courses. This is true despite the fact that he may have acquired this content through self study or otherwise. . . . The authors believe that the certification function should be broadly conceived, and considered essentially an administrative one as distinguished from a clerical one. . . . Perhaps there could be a board to evaluate cases which do not fit within the letter of the law but which seem deserving of added attention."

A point which is often overlooked is brought out in a question in regard to salary comparisons: "But did this school have a comparable group of teachers throughout the period under consideration, or was the composition of the staff in 1940 quite different from what it was in 1954? Facts on the preparation of teachers, the proportion of men and women, martial status, age and experience—these are important considerations that bear on the validity of such a comparison."

The discussion of teacher retirement is quite full. The problem of the coordination of teacher retirement and social security is treated at some length. If the stand is taken that all citizens have an equal claim for security in their old age, the conclusion would appear to be that in the long run all citizens will be under the same old-age security system. However, this eventuality is a long way off, and the discussion of the problems that face the teaching profession now in regard to the coordination of teacher-retirement systems and social security is most timely.

The treatment of the roles of the AFT and the NEA is the fairest the reviewer has seen. It is factual, balanced, judicial, and comes to a conclusion it will be difficult to dispute—that each organization has its place of usefulness, but that the great mass of teachers will continue in the NEA.

One of the most emphatic statements in the volume sheds light on both the authors' idea of how faculty meetings should be conducted, and on the state of the average classroom. "Often a regular classroom is selected as the place to hold a faculty meeting. This is about the worst spot possible, from the standpoint of facilitating a good discussion. The seats are usually uncomfortable for adults; moreover they can seldom be so arranged that everyone is visible to everyone else. Some room should be selected where the chairs are comfortable and can be arranged in a semicircle or a square. Easels, bulletin boards, a blackboard, and a screen should be available so that various types of visual aids can be used." A truly revealing comment on the conditions under which most teaching is done.

The suggestions put forward by the authors on proper methods of organization for curriculum work and in-service improvement are clear and sound. The discussion of academic freedom is practical, and still holds to the highest ideals. The treatments of all the topics are sound and statesmanlike; and in accordance with the aims of its authors, this volume is a rich source of information for school administrators, supervisors, and classroom teachers.

EUGENE S. LAWLER
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Audio-Visual Methods in Teaching (Revised Edition), by Edgar Dale. New York, The Dryden Press, 1954. ix + 534 pp. $6.25.

The first edition of this book, published in 1946, was an important contribution to the audio-visual field. The revision promises to be even more useful because of the addition of much new material and the thorough reworking of the original text.

Part I, consisting of seven chapters, deals with the theory of audio-visual instruction.

Here Mr. Dale presents concepts of teaching and of learning, and shows how audio-visual materials can contribute to these processes. The thirteen chapters of Part II discuss each type of audio-visual materials, arranged in the order of the now-familiar "cone of experience." In Part III, the ten chapters deal with classroom applications in various subject-matter fields at the elementary and junior-senior high school levels.

The treatment is comprehensive, thorough, and highly interesting. The author draws upon an unusually wide range of literary sources to point up many of his comments. In fact, the plentiful verbal illustrations are fully as good as the excellent pictorial ones, which with their captions make a succinct text in themselves.

Throughout the book Mr. Dale's writing exemplifies the ideas on communication which he presents at the outset. Time and again the reader will find important concepts skilfully re-introduced in varied context so that he can hardly avoid acquiring richer meanings.

There are many features which especially pleased this reviewer. Constantly stressed is the importance of reading in the learning process; coupled with this is the warning against overenthusiasm for audio-visual materials, against failure to see them in proper perspective. Local production of certain types of materials is given full attention. Throughout the chapters which deal with utilizing films, filmstrips, recordings, and the like there is an emphasis on the imaginative development of techniques which are varied, appropriate to the medium, and well suited to the needs and interests of the particular group of students.

In this connection the author suggests repeatedly the desirability of cooperative planning by teacher and students with respect to the purposes to be achieved by the use of an item, to the actual selection of the item, and to the ways in which it is to be employed. But there is little said about allowing students any choice as to *what* is to be studied, within the framework of local curriculum prescription.

There are excellent sections on teaching pupils how to "read" a still picture and how to listen to radio and recordings. But one wishes there had been a comprehensive discussion of ways of teaching them how to learn from motion pictures—an analysis which Mr. Dale is especially qualified to present. The motion picture has a "language" of its own which needs to be understood. The child spends several years of his school life in learning how to learn from the printed page; since films have come into widespread classroom use, it would seem logical to devote some time to helping him acquire techniques of learning from the motion picture.

For some readers, the initial chapter, "Good Teaching and Communication," will leave a feeling of dissatisfaction. Mr. Dale begins by exploring "sympathy" and "good explaining," two qualifications of good teaching stressed by students. He goes on to say, "An acceptable definition must include more than a student's-eye view of good teaching. It must be broad enough to take in both the immediate and the long-term goals of education in contemporary America. Good teaching is essentially good communication, and good communication requires sympathetic sharing and clear explaining, but what is this communication for? What is our direction, and why?" He then discusses education versus training, the importance of knowing the desired outcomes, providing needed experiences, and evaluation in terms of changed behavior. Now no one can quarrel with what is said; the dissatisfaction will be with what is omitted. To say nothing specifically about the role of the good teacher in aiding each student to grow to the limit of his capacities is to overlook an important feature of materials utilization—a concern for the impact of the material on each individual in the class. Indeed the wording of this section (and undoubtedly the author had no intention of creating this effect) seems to indicate a preoccupation with the class as a group, rather than with the group *and* the individuals composing it.

One must congratulate Mr. Dale upon boldly including a chapter on human relations in education among the subject-matter chapters dealing with the use of audio-visual methods. Here is recognition of what should be an important area of the modern curriculum. Nor has the author slighted education in planning and in problem-solving; the illustrations of classroom procedure show specifically how pupils can be helped to grow in these skills.

Audio-Visual Methods in Teaching is a book which everyone concerned with the use of instructional materials—prospective teachers, teachers in service, administrators, supervisors, audio-visual specialists, and curriculum workers—will find it profitable to read and re-read.

M. R. Brunstetter
Teachers College, Columbia

Curriculum Planning, by J. Galen Saylor and William M. Alexander. New York, Rinehart and Company, 1954. xiii + 624 pp. $5.50.

In little more than three decades, organized curriculum improvement programs of some kind have become almost a standard part of school systems throughout the country. But while the need for continuous study of educational programs is now widely accepted, at least at a verbal level, real instructional change has frequently failed to materialize. Saylor and Alexander have written a book to help individuals and groups remedy this condition.

Many groups have struggled with curriculum improvement. At first organized curriculum revision was conceived in terms of new courses of study developed by central office experts with some committee assistance. When such paper changes failed to modify the learning experiences of youngsters, curriculum workers turned their attention to the process of change as well desirable ends. As a result, the dominant influence on current activities has been the idea that only through changes in people—best brought about by involving them in the process—can the curriculum be changed. Schools have since gone all out to involve people in planning programs, although too many such efforts have consisted only of activities which are routine, haphazard, and aimless. Despite numerous busy workers expending considerable time and effort, too often the learning experiences of children remained somehow untouched. A basic reason for this seems to be that those involved frequently lack insight into the comprehensive nature of curriculum planning. Consequently, they go through the motions of involvement in activity without meaning or understanding—and without real change.

Saylor and Alexander have tried to help professional personnel gain better insights into the complex processes of improving instruction with a "comprehensive treatment of principles, problems, and practices in the planning of curriculum and teaching." Their book is divided into five parts: the needs for curriculum planning, the major factors which must be considered in planning, organizing the curriculum framework, planning for better teaching, and organizing for participation in and evaluation of planning. In general their approach is a positive one. The authors recognize that American schools, having accomplished many proud things, now must face inadequacies and problems which they can overcome only through better planning.

They define the needs for planning by appraising current school practices. Basic issues are clearly stated and various points of view, including the authors' own, are fairly presented. These are discussed not in the abstract but in terms of their implications for selecting and organizing learning experiences. This is one of the book's strengths: theory and practice are related and clarified through good illustrations.

Planners, the authors point out, are not free to create *de novo* the program they consider best for children, but must plan realistically in the light of forces existing in the situation. The many interrelated factors that influence planners in their choices and

decisions are treated as potential helps or blocks in developing a better local program. Chapters are devoted to each of the "three elements in the educative process—the child, the society, and the interaction of the two." From these analyses of current issues, important factors influencing planning, the impact of the culture, the nature of the learner, and the teaching-learning process, Saylor and Alexander indicate sources of curriculum goals, how these may be formulated, and how they may be used in curriculum planning.

Curriculum design and the determination of scope and sequence—the framework for attaining educational objectives—are examined in Part 3. The major designs (including traditional subject-matter types and newer approaches) are discussed in terms of their meaning for selecting, planning, and developing learning experiences. A chapter is devoted to the "core curriculum" as an important current movement. The core is discussed, however, as an administrative plan for scheduling a major portion of general education rather than a special curriculum design. This distinction is important for planners, since a decision to schedule some type of core still requires further choices as to the framework through which experiences shall be selected and carried on. This has often been overlooked by core planners.

In the last analysis, Saylor and Alexander emphasize, planning is effective only if done in terms of changing the ways teachers work with children and the kinds of educational experiences they provide. Frequently, planning has fallen flat because of a broad, global concern and insufficient attention to implementation and enactment in the classroom. Having considered problems of reorganizing the curriculum framework, the authors then focus Part 4 directly on planning for better teaching. Resource units, unit plans, and other preplanning activities are described and illustrated. Cooperative procedures in teacher-pupil planning, selection and use of curriculum resources, and classroom experimentation are treated in clear detail in this section.

The final part of the book spells out process: how to organize for cooperative participation in planning; how to select specific techniques and procedures; how to facilitate participation by individuals and groups on various planning levels; how to use resources within and outside the school. The authors indicate that different kinds of organization and procedures are appropriate for each of the four levels of curriculum planning—the teachers', the school unit's, the school system's, and the outside group's. Saylor and Alexander view the task of organization as one of stimulating and coordinating efforts of many individuals and groups.

The problems of evaluating curriculum planning to secure evidence for further planning and to determine the effectiveness of procedures employed are examined in the final chapter. Such evaluation must include the over-all planning of goals and design; the planning of learning experiences; and the organization for planning. Had evaluation been an integral and continuous part of the total planning process in many earlier programs, had evidence been obtained on the effectiveness of planning, much wasted time and futility might have been avoided.

This book is permeated with the authors' own long and extensive experiences in curriculum programs of many kinds. Aside from their national leadership, both authors have been engaged in curriculum planning at the "shirtsleeve level" for many years. Their approach is that of fellow curriculum researchers encouraging others to plan on the basis of evidence—to develop an experimental approach to curriculum planning. They shun pat and rigid formulas in favor of guiding principles and suggestions which should be valuable in particular situations. The illustrative material is well-selected. An up-to-date bibliography follows each chapter. The value of these suggested readings is enhanced by concise annotations. This book should serve to introduce newcomers to the study of curriculum. Beyond this, there are depth and substance to intrigue and assist the more experienced professional—class-

room teacher or administrator—to critically examine his own philosophy and approach to planning for better teaching and learning.

A. Harry Passow
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America's Resources of Specialized Talent, The report of the Commission on Human Resources and Advanced Training, by Dael Wolfle, New York, Harper & Bros., 1954. xviii + 332, $4.00.

This is an important book for those in the field of education. Basically, it is a study of the training, supply, and utilization of highly trained manpower in a variety of fields. There is a discussion of the supply of students graduating from college and a more detailed discussion of the supply of people with master's and doctor's degrees.

The discussion covers the physical sciences, psychology, social science, humanities and arts, engineering, applied biology (including agriculture), the health fields, business and commerce, school teaching, and a variety of other, smaller professions.

Some of the information regarding teachers is put in a striking form: "In Arizona, over 97 per cent of all elementary teachers were college graduates in 1952. In South Dakota, only 9 per cent were college graduates." The conclusion regarding the supply and demand of teachers is that "there will continue for some years in the future to be a serious shortage of qualified teachers for the nation's elementary and secondary schools. Against a new supply which will average 100,000 or less a year for the next five years can be placed a clearly foreseen demand for 160,000 per year."

The projected figures on college enrollment are most important. They estimate that college enrollment in 1953 was 2,250,000 and that it will be approximately 2,900,000 in 1960, approximately 3,800,000 in 1965, and approximately 4,500,000 in 1970. The report continues further to state that "even though every person who receives a doctor's degree in the next few years is appointed to a college or university, there will not be enough to satisfy the anticipated requirements."

Toward the end of the report, there is the prediction that for the next few years there will be shortages in engineering, science, school teaching, medicine, nursing, and other fields, and that the total number of graduates will fall far short of employers' demands.

There is a very interesting discussion of the ability level in the various fields. It is stated that the average ability of students who enter such fields as physical science, engineering, law, English, and foreign languages is higher than the average of those in education, business, or home economics. The report does go on to say, however, that there is much overlapping. Every field attracts some very able students and some of lower ability. As a matter of fact, if the differences in ability are put in terms of the total population, they appear extremely small.

The report, as a whole, is a most helpful discussion of the value and use of specialized talent. It strongly urges that more attention be paid to the importance of this specialized talent in the general welfare of the nation, with which position all students of the problem can agree.

Harold F. Clark
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Communism in Education in Asia, Africa and the Far Pacific, by Walter Crosby Eells, Washington, D. C., American Council on Education, 1954. x + 246 pp. $3.00.

The author of any broad survey inevitably faces a dilemma. If he limits himself to those areas of the subject in which he may rightly claim some degree of authority, he fails to cover the extensive material which a systematic analysis would demand. Yet in treating each area which logi-

cally must be considered, he is almost certain to go far beyond his own personal competence, and to fall into the trap of superficialities based on secondary and tertiary sources.

In choosing a title such as *Communism in Education in Asia, Africa and the Far Pacific*, Walter Crosby Eells chose the latter of these two dangers. Perhaps because the title gives such promise, the work itself appears vaguely unsatisfying. Dr. Eells spent two years travelling in thirty-nine countries following his retirement in 1951 from a position as Advisor on Higher Education, which he had held for four years in the Headquarters of the Supreme Commander for the Allied Powers in Japan. These thirty-nine countries did not include any European area, but were about evenly distributed between Southeast Asia, the South Pacific and the Indian Subcontinent, the Middle East, East Africa, and North Africa. During these two years, Dr. Eells interviewed educational leaders, read the daily press, both Communist and anti-Communist, and visited a sampling of schools. To complete the picture, he has added a chapter on China, a country which he was unable to visit personally and which he has appraised solely on the basis of interviews and reading. Significantly, this is perhaps the most readable of the chapters.

Dr. Eells spent four years in Japan in a position which unquestionably made available to him extremely interesting and authoritative material on the problem of Communism in the schools of that country. He was more than once publicly attacked by the Communists for his ideological views. It is puzzling, therefore, that he has treated so summarily this focal point of political unrest in the Pacific. He recounts anecdotes of heckling by Communist agitators while speaking to university audiences. He repeats general stories of the strength of Communist infiltration into universities and into the Japan Teachers Union. But he fails to reveal sources which are more authoritative than newspaper stories, a number of which are from English-language newspapers and hence suspect of being vehicles for propaganda to the American occupation forces. He also lumps together "Communist" and "anti-American" criticism, which, when they deal with such emotion-laden subjects as Hiroshima, need not be identical. There can be little doubt that Communism has been and remains a very real threat in Japan, and has undoubtedly tried to use the schools for its own ends. But it is unfortunate that Dr. Eells has not made use of the primary materials to which he must have had access in presenting a more systematic and a more definitive study of this area.

The book might more appropriately have been titled "Conversations and musings on the problems of Communism in our times" than the title which it bears. Dr. Eells is a thoughtful man, and an educator of great experience. A record of his conversations with educational leaders around the world and his personal reflections on them are not without value. But it can hardly be called a scholarly investigation, nor does it lead to a systematic presentation which answers the question the reader brings to the volume.

The book is filled with references such as, "On the day that we sailed from Penang, bound for Australia and New Zealand . . ." or, "While the writer was in the Philippines . . . ." The reader well knows from the jacket that Dr. Eells has personally visited these areas, but the brevity of his visits can make of such phrases only an attempt to date the event and not a claim to authoritative knowledge of the area. Even more disconcerting is the constant reference to such unidentified sources as, "A particularly well-informed individual . . ." or, ". . . a woman in Melbourne who said she had been teaching in a secondary school . . ." or, ". . . those in Bangkok familiar with the situation . . . ." Where he has identified the sources, they range from such undeniable experts as Dr. Stephen B. L. Penrose, President of the American University of Beirut, to those whose access to information on membership in subversive Communist groups might well be questioned. Typical of this latter

might be his "Miss Hanna, an American teacher on a Fulbright grant for 1951-52, estimated to the writer that fully half of the students were Communists."

His cited documentary sources are equally disappointing—*TIME*, the *Reader's Digest*, *Times Educational Supplement* (London), *United Nations World*, *New Republic*, *School and Society*, *New York Times*, *Educational Record*, *Universities Review*. Oddly enough, in the chapter on China, where he was forced to rely on documentary sources almost entirely, he turned to sources which may not have been either more accurate or disinterested, but which hold interest as illustrative material taken from Communist-controlled sources themselves.

Dr. Eells deserves great credit for his honesty and frankness, but the record is hardly convincing if it is supposed to establish him as an expert. Two days in Indo-China; two weeks in the Philippines; a total of four months for India, Pakistan and Ceylon; and less than two months for Iran, Iraq, Lebanon, Syria, Jordan, and Turkey combined. It is just this superficiality of personal contact which makes his sweeping generalizations seem the more unfortunate. Thus, in speaking of Macao, one of the most troubled areas in the world, he writes, "No evidence was found of Communist influence in any of these schools," and later, "Little positive evidence of disruptive Communist influence was found among the schools of New Zealand."

It is a tribute to the balanced judgment and impressive educational experience which Dr. Eells possesses that so high a proportion of his appraisals stand critical scrutiny in spite of the limitations of his research. When he deals with the Middle East, he quite correctly states, "For the great bulk of the population, devoutly Muslim, Marx cannot compete with Allah, nor Stalin with Mohammed. To many of them, however, Zionism is a far greater menace than Communism." He accurately reports a strong anti-American sentiment which stems from the Arab belief that the United States' recognition of and aid to Israel was nothing short of backing an armed aggressor. "The United States is blamed very largely for the situation in Israel and for the hundreds of thousands of Arab refugees." This is not per se a "Communist" sentiment, but it is a climate of opinion which is receptive to Communism. He is somewhat ambivalent with regard to one of the great myths of education, that literacy produces a "democratically inclined" people. He quotes, ". . . empty minds and souls provide as good a breeding ground for Communism as empty stomachs," yet in another place he states, "It has sometimes been said, also, that Communism thrives on ignorance and illiteracy, but this generalization is not entirely borne out in India." He seems to have few doubts, however, with regard to the equally widespread myth of politics, that low living standards produce Communism. "It was shown that in many countries distressing economic and resultant unsatisfactory social conditions are basic reasons for the appeal of Communism."

It is when he comes to specific suggestions as to an American course of action to correct the situation that Dr. Eells makes his greatest contribution. In these all too few closing pages of his study he draws upon the educational material of which he is clearly master and in simple practical terms speaks to the basic issue, that of meeting the *ideological* appeal of Communism with a democratic way of life that is demonstrably superior. He concludes, not with an appeal to the stomach, but with an appeal to the mind. "The war of ideas must be won. Communists must not be permitted to possess the minds and souls of the youth of Asia, Africa, and the South Pacific."

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Books Recently Received for Review

Bernard, Harold W., *Psychology of Learning and Teaching.* New York, McGraw-Hill, 1954. 396 pp. $5.00.

Clark, John R., and Eads, Laura K., *Guiding Arithmetic Learning.* New York, World Book Co., 1954. 270 pp.

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